## ENDNOTES

[1] Below the strategic level of nuclear employment more limited scenarios could also be simulated, including a Chinese regional nuclear attack against U.S. forward deployed military forces in Northeast Asia, or a U.S. limited nuclear attack on Chinese conventional or nuclear forces in a war over Taiwan. Both countries have probably drawn up such (or similar) plans for limited nuclear use under the assumption that the other side would be deterred from escalating to strategic war. But wars never go according to plan, and the scenarios in this report are intended to remind the reader of the stakes of miscalculation.

[2] For detailed overviews of U.S. nuclear forces, see our annual status reports in the Nuclear Notebook published in the *Bulletin of the Atomic Scientists* at http://www.thebulletin.org/nuclear_weapons_data/.

[3] The history of China's role in U.S. nuclear planning during the Cold War is surprisingly poorly described in the open literature and seems to have eluded most analysts and scholars who have focused almost exclusively on the U.S.-Soviet deterrence relationship. According to one report: "Experts in China recall a history of U.S. nuclear blackmail and a slow but steady progress in bringing a credible deterrent posture into being. Experts in the United States seem barely to recall this history at all, recalling China as little more than a footnote in the history of the nuclear era. This leads to very different views of the strategic balance between the two, the principles of nuclear strategy, and the constraints on future developments." Brad Roberts, *China-U.S. Nuclear Relations: What Relationship Best Serves U.S. Interests?*, Institute for Defense Analysis/Defense Threat Reduction Agency, IDA Paper P-3640, September 2001, p. ES-2. Available online at www.au.af.mil/au/awc/awcgate/dtra/china_us_nuc.pdf.

[4] Recent efforts to increase communication between the two countries include military-to-military discussions about nuclear policy, reciprocal military visits, and invitation of observers to military exercises.

[5] For a thoughtful analysis of this trend, see: Alastair Iain Johnston, "China's New 'Old Thinking': The Concept of Limited Deterrence," *International Security*, Vol. 20, No. 3 (Winter 1995/96), pp. 5-42.

[6] "China's Endeavors for Arms Control, Disarmament and Non-Proliferation," Information Office of the State Council of the People's Republic of China, Beijing, September 2005, pp. 3, 6, 9. Emphasis added.

[7] For three informative works on Chinese nuclear force developments and their impact on doctrine, see: Michael S. Chase and Evan Medeiros, "China's Evolving Nuclear Calculus: Modernization and Doctrinal Debate," Kenneth Allen and Maryanne Kivlehan-Wise, "Implementing PLA Second Artillery Doctrinal Reforms," both in James C. Mulvenon and David Finkelstein (eds.), *China's Revolution in Doctrinal*

*Affairs: Emerging Trends in the Operational Arts of the Chinese People's Liberation Army,* Alexandria: Center for Naval Analysis, 2005, pp. 119-157, 159-219, respectively; Bates Gill, et al., "The Chinese Second Artillery Corps: Transition to Credible Deterrence," in James C. Mulvenon and Andrew N.D. Yang (eds.), The People's Liberation Army as Organization, Santa Monica, CA: RAND, 2002, pp. 510-586.

[8] U.S. Department of Defense, Office of the Secretary of Defense, *The Military Power of the People's Republic of China 2003*, July 30, 2003, p. 31.

[9] Keith Crane, et al., *Modernizing China's Military: Opportunities and Constraints*, RAND Project Air Force, 2005, p. 202.

[10] U.S. Department of Defense, Office of the Secretary of Defense, *Military Power of the People's Republic of China, 2006*, May 23, 2006, pp. 2, 13-14, 28.

A box in the 2006 DOD report cites three Chinese articles to question whether China will maintain its no-first-use policy, including an interview with Chu Shulong at Qinghua University:

> While affirming 'no first use,' Chu Shulong, from the prestigious Qinghua University, also stated in a July 2005 interview printed in a state-owned media that "if foreign countries launch a full-scale war against China and deploy all types of advanced weapons except nuclear weapons, China may renounce this commitment [to no first use] at a time when the country's fate hangs in the balance.

Yet according to Jeffrey Lewis at *armscontrolwonk.com*, the FBIS translation apparently used by the Pentagon was wrong. The FBIS headline was "PRC Expert Warns PRC May Renounce 'No First Use' of Nuclear Weapons in War Time, but the translation of the Chinese title is "PRC Expert: China's Policy on Nuclear Weapons Remains Unchanged." The Pentagon's excerpt above appears to misrepresent what the Mr. Chu said by including one part of the interview but ignoring another:

> The Director of Tsinghua University's Institute of Strategic Studies, in an interview with a reporter from Da Gong Bao expressed, [sic] China's promise not to be the first to use nuclear weapons was extremely clear and firm. As of now, their [sic] isn't the slightest indication that China's government will let go of this promise. "(I) have not heard any leader on any occasion state China will change or let go of this position. Never."
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> At the same time Chu Shulong provided a hypothetical, except in the case of a foreign power launching a full scale war against China, using all of their advanced (precision) weaponry except nuclear weapons, and the Chinese nation were facing the fanger of extermination, China may let go of this promise. But he considered the possibility not very great. "I think what Zhu Chenghu said is the worst possible circumstance, and the worst possible circumstance should not happen."

See: Jeffrey Lewis, "China and No First Use," *armscontrolwonk.com*, May 31, 2006, URL http://www.armscontrolwonk.com/1082/china-and-no-first-use

[11] Peter W. Rodman, Assistant Secretary of Defense for International Security Affairs, *"The Military Power of the People's Republic of China,* prepared statement before the House Armed Services Committee Thursday, June 22, 2006, p. 5.

[12] Confidence in the capability of the U.S. offensive nuclear capability appears to be high. According to the Rear Admiral Eric A. McVadon, former Deputy Director for Strategy, Plans and Policy (Navy Staff) and Defense and Naval Attache at the American Embassy in Beijing, "even with the augmented nuclear arsenal [of DF-31 and JL-2 missiles], China's minimal deterrent is useful only when unused." Rear Admiral (USN, Ret.) Eric A. McVadon, Director of Asia-Pacific Studies, Institute for Foreign Policy Analysis, "Recent Trends in China's Military Modernization," prepared statement before the U.S.-China Economic and Security Review Commission, September 15, 2005, p. 6.

[13] Though it should be said that Russia has not completely left the field. See Stephen F. Cohen, "The New American Cold War," *The Nation*, July 10, 2006, pp. 9-17.

[14] Mark Mazzetti, "Pentagon Says China Seeks to Extend Military Reach," *Los Angeles Times*, July 20, 2005, p. 1.

[15] Robert S. Dudney, "What It Means To Be No. 1," *Air Force Magazine*, February 2006, p. 2.

[16] "China's Endeavors for Arms Control, Disarmament and Non-Proliferation," Information Office of the State Council of the People's Republic of China, Beijing, September 2005, p. 16.

The 2006 DOD report on China's military forces attributed a slightly different range to DIA for the Chinese defense budget, saying that the "DIA estimates that China's total military-related spending will amount to between $70 billion and $105 billion in 2006." U.S. Department of Defense, Office of the Secretary of Defense, *Military Power of the People's Republic of China, 2006*, May 23, 2006, p. 20.

[17] Peter W. Rodman, Assistant Secretary of Defense for International Security Affairs, *The Military Power of the People's Republic of China,* prepared statement before the House Armed Services Committee Thursday, June 22, 2006, p. 3.

[18] Keith Crane, et al., *Modernizing China's Military: Opportunities and Constraints*, (The Rand Corporation, 2005), esp. 91-134.

[19] Lt. Gen. Michael D. Maples, USA, Director, Defense Intelligence Agency, "Current and Projected National Security Threats to the United States," Statement For the Record before the Senate Armed Services Committee, 28 February 2006, pp. 17-18.

[20] U.S. Department of Defense, Office of the Secretary of Defense, *Quadrennial Defense Review*, February 6, 2006, p. 29.

[21] Stephen I. Schwartz, ed., *Atomic Audit: The Costs and Consequences of U.S. Nuclear Weapons since 1940* (Washington, DC: Brookings Institution, 1998).

[22] U.S. Department of Defense, Office of the Secretary of Defense, *Quadrennial Defense Review*, February 6, 2006, p. 29. The QDR's assessment of China as the primary large-scale military threat is repeated in the Pentagon's 2006 report on China's military forces. U.S. Department of Defense, Office of the Secretary of Defense, "Military Power of the People's Republic of China, 2006," May 23, 2006, p. I.

[23] U.S. Department of Defense, *Proliferation: Threat and Response*, November 1997, p. 15.

[24] Kenneth H. Bacon, Assistant Secretary of Defense (Public Affairs), DOD News Briefing, September 12, 2000, 2:41 p.m. EDT.

[25] U.S. Department of Defense, Office of the Secretary of Defense, *Quadrennial Defense Review,* February 6, 2006, pp. 29-30.

[26] Strategic Deterrence Requirements 2020 Study, Joint Requirements Oversight Council Memorandum (JROCM) 132-03, 17 June 2003, enclosure, pp. 2-3. Released under FOIA.

[27] Donald H. Rumsfeld, Secretary of Defense, Remarks as Delivered by Secretary of Defense Donald H. Rumsfeld, Shangri-La Hotel, Singapore, June 4, 2005, available on-line at http://www.defenselink.mil/speeches/2005/sp20050604-secdef1561.html

Rumsfeld's point about equating Chinese modernizations with offensive intentions is similar to the language used in Ronald Reagan's famous Star Wars speech in March 1983, where he said that "the Soviet Union is acquiring what can only be considered an offensive military force. They have continued to build far more intercontinental ballistic missiles than they could possibly need simply to deter an attack. Their conventional forces are trained and equipped not so much to defend against an attack as they are to permit sudden, surprise offensives of their own." Ronald Reagan, Address to the Nation on Defense and National Security, March 23, 1983, available on-line at http://www.reagan.utexas.edu/archives/speeches/1983/32383d.htm

[28] In addition to the U.S. influence, it is important to also mention the Chinese-Soviet standoff in the early 1980s which also had a strong impact on Chinese military planning.

[29] Keith Crane, Roger Cliff, Evan S. Medeiros, James C. Mulvenon, William H. Overholt, *Modernizing China's Military: Opportunities and Constraints*, (The Rand Corporation, 2005), p. 193.

[30] Douglas J. Feith, U.S. Under Secretary of Defense for Policy, "Prepared Statement of Under Secretary of Defense for Policy Douglas J. Feith Before [the] Senate Foreign Relations Committee," July 24, 2001, pp. 7, 8. STRATCOM commander Admiral James O. Ellis echoed this assessment in his response to advanced questions for his nomination as CINCSTRAT in September 2001 when he said: "The overall effectiveness of Russian forces would not be significantly diminished by U.S. deployment of a limited missile defense." U.S. Senate, Committee on the Armed Services, "Advanced Questions for Admiral James O. Ellis, Jr., Nominee for the Position of Commander in Chief, U.S. Strategic Command," September 25, 2001, p. 9.

[31] U.S. Department of Defense, Office of the Secretary of Defense, *"The Military Power of the People's Republic of China, 2002*," 2002, pp. 27-28.

[32] Ann Scott Tyson, "U.S. Missile Defense Being Expanded, General Says," *Washington Post*, July 22, 2005, p. A10.

[33] U.S. Department of Defense, Office of the Secretary of Defense, "*The Military Power of the People's Republic of China, 2004,*" 2004, pp. 12-16.

[34] *The National Security Strategy of the United States of America*, The White House, March 2006, p. 41.

[35] U.S. Department of Defense, Office of the Secretary of Defense, *Nuclear Posture Review Report*, January 8, 2002 (Submitted to Congress on December 31, 2001), pp. 16-17. Excerpts available via http://www.GlobalSecurity.org.

[36] William M. Arkin, "America's New China War Plan," *Early Warning (Washington Post)*, May 24, 2006.

[37] U.S. Department of Defense, Office of the Secretary of Defense, *Quadrennial Defense Review*, February 6, 2006, p. 29.

[38] Ibid.

[39] Annual reports from 1995-2005 are available at http://www.defenselink.mil/execsec/adr_intro.html

[40] U.S. Department of Defense, Office of the Secretary of Defense, *Quadrennial Defense Review*, February 6, 2006, p. 29.

[41] U.S. Department of Defense, Office of the Secretary of Defense, *Military Power of the People's Republic of China, 2006*, May 23, 2006, n.p (third sheet).

[42] Peter W. Rodman, Assistant Secretary of Defense for International Security Affairs, The Military Power of the People's Republic of China, prepared statement before the House Armed Services Committee Thursday, June 22, 2006, p. 3.

[43] U.S. Department of Defense, Office of the Secretary of Defense, *The Military Power of the People's Republic of China, 1997*, April 8, 1998, pp. 1-2.

That is not to suggest that the United States did not have concerns about China's nuclear (and general military) development at the time. In testimony to the Senate Armed Services Committee in April 1999, Assistant Secretary of Defense for Strategy and Threat Reduction Edward L. Warner stated that the United States was trying to make China become a positive force for regional stability and peace, but cautioned that "we are not now assured that this will be the case, and that our nuclear forces will not be needed at some future point to deter China. China has a much smaller nuclear force than Russia's, but one that is still formidable, consisting of about 20 CSS-4 ICBMs capable of reaching the United States in addition to several dozen theater-range nuclear ballistic missiles. And China continues to make steady efforts to modernize these forces." Nonetheless, Warner continued, "Given the overall positive trends in Russia and China over the past decade, however, one of our most critical security challenges today is the proliferation of weapons of mass destruction (WMD) and systems for their delivery." Statement of the Honorable

Edward L. Warner, III, Assistant Secretary of Defense for Strategy and Threat Reduction, Before the Senate Armed Services Subcommittee on Strategic Forces, April 14, 1999, pp. 1-2.

[44] U.S. Department of Defense, Office of the Secretary of Defense, *Military Power of the People's Republic of China, 2006*, May 23, 2006, p. 26. The 2005 report also mentioned Australia and New Zealand, but these countries were removed from the 2006 list and appear not to be relevant anyway to Chinese nuclear targeting. U.S. Department of Defense, Office of the Secretary of Defense, *The Military Power of the People's Republic of China, 2005*, July 30, 2005, p. 28.

[45] John D. Negroponte, Director of National Intelligence, Statement to the Senate Select Committee On Intelligence," February 2, 2006, pp. 1-2, 20, 21.

[46] Ibid., pp. 2, 20, 21. Emphasis added.

[47] U.S. Central Intelligence Agency, Director of Central Intelligence, Foreign Missiles Developments and the *Ballistic Missile Threat Through 2015*, National Intelligence Council, December 2001, p. 3.

[48] Michael D. Maples, Lieutenant General, U.S. Army, Director, Defense Intelligence Agency, *Current and Projected National Security Threats to the United States*, Statement For the Record before the Senate Armed Services Committee, 28 February 2006, p. 4.

[49] Ibid, p. 5.

[50] Rowen Scarborough, *Rumsfeld's War: The Untold Story of America's Anti-Terrorist Commander* (Washington, DC: Regnery Publishing Co., 2004).

[51] Dan Stober and Ian Hoffman, *A Convenient Spy: Wen Ho Lee and the Politics of Nuclear Espionage* (Simon & Schuster, 2002).

[52] Bill Gertz, "China Tests New Long-Range Missile," *Washington Times*, August 3, 1999, p. 1.

[53] *Report of the Select Committee on U.S. National Security and Military/Commercial Concerns With the People's Republic of China* (U.S. Government Printing Office, Washington D.C., 1999), Volume I, p. 193. Emphasis added.

[54] Ibid., p. 180.

[55] "China's Endeavors on Arms Control, Disarmament and Non-Proliferation," Information Office of the State Council of the People's Republic of China, Beijing, September 2005, p. 9.

[56] U.S. Central Intelligence Agency, *Key Findings: The Intelligence Community Damage Assessment on the Implications of China's Acquisition of US Nuclear Weapons Information on the Development of Future Chinese Weapons*, Press Release, April 21, 1999.

[57] Jonathan D. Pollack, "The Cox Report's 'Dirty Little Secret'," *Arms Control Today*, April/May 1999, n.p. (electronic version).

[58] Richard L .Garwin, "Why China Won't Build U.S. Warheads," *Arms Control Today*, April/May 1999.

The claim that smaller Chinese warheads on new mobile missiles were "in part influenced by US technology gained through espionage" was echoed in Central Intelligence Agency, *National Intelligence Council, "Foreign Missile Developments and the Ballistic Missile Threat to the United States Through 2015*, September 1999, n.p. [Internet version page 3 of 14].

[59] Alastair Iain Johnston, et al., *The Cox Committee Report: An Assessment*, Center for International Security and Cooperation, Stanford University, December 1999, pp. 11-12. Emphasis added.

For a description of the difference between minimum and limited deterrent, see "China's Nuclear Weapons Policy" on p. 30.

[60] Ibid., p. 26.

[61] Bill Gertz, "U.S. Secrets Aboard Latest Chinese Sub," *Washington Times*, December 6, 1999, p. 1. Emphasis added.

A statement by former STRATCOM commander General Eugene Habiger (who at the time of the article served a the DOE's security chief) that "the jury is still out" on whether China's new strategic weapons will contain stolen U.S. nuclear weapons secrets, was buried at the end of the article and did not soften the story or headline.

[62] The Cox report resulted in the FY 2000 Defense Authorization Act establishing the U.S.- China Economic and Security Commission to monitor, investigate, and submit to congress an annual report on the national security implications of the bilateral trade and economic relationship between the United States and the People's Republic of China, and to provide recommendations, where appropriate, to Congress for legislative and administrative action. Three Annual Reports have been submitted in 2002, 2004 and 2005. The conclusions are largely consistent with other intelligence reports, including that "By 2015, China's intercontinental nuclear force is projected to grow to 75 to 100 warheads."

[63] Admiral William J. Fallon, Commander, U.S. Pacific Command, statement before the Hearing of the Senate Armed Services Committee Military Strategy and Operational Requirements in the FY 2007 Defense Budget, March 7, 2006, p. 31.

[64] "Chinese Spokesman lists Agreements Reached in Military's Leader's US Trip," *BBC*, July 20, 2006.

[65] Unfortunately, CRS reports are not made available to the public but only to members of Congress. Yet many CRS reports are available from the Federation of American Scientists Government Secrecy project at http://www.fas.org/sgp/crs/nuke/index.html

[66] Shirley A. Kan, *China: Suspected Acquisition of U.S. Nuclear Weapon Secrets*, RL30143, updated February 1, 2006. Available at http://www.fas.org/sgp/crs/nuke/RL30143.pdf

[67] Ibid., pp. 18-19. The report is available at http://www.fas.org/sgp/crs/natsec/RL33607.pdf

[68] Christopher Bolkcom, et al., *U.S. Conventional Forces and Nuclear Deterrence: a China Case Study*, Congressional Research Service, RL33607, August 11, 2006, p. 20. The report is available at http://www.fas.org/sgp/crs/natsec/RL33607.pdf

[69] Ibid., p. 26. The report is available at http://www.fas.org/sgp/crs/natsec/RL33607.pdf

[70] Ibid., pp. 20, 22. The report is available at http://www.fas.org/sgp/crs/natsec/RL33607.pdf

[71] For a thoughtful analysis of this trend, see: Alastair Iain Johnston, "China's New 'Old Thinking': The Concept of Limited Deterrence," *International Security*, Vol. 20, No. 3 (Winter 1995/96), pp. 5-42.

[72] Yet some suggest that the combined effect of the security challenges facing China and the capabilities evolving as part of China's current modernization of its nuclear forces and supporting capabilities almost inevitably will drive Chinese nuclear policy beyond the current minimum deterrent. For example, while concluding that "dramatic departures in Chinese doctrine, strategy, and capability seem unlikely…[f]or the moment at least," a report published by the Institute for Defense Analysis in 2003, predicted:

> To be sure, qualitative and quantitative improvements to China's forces have long been under way and would likely occur in the absence of a U.S. BMD program. But this historical review suggests that those improvements will be tailored to meet the new requirements of survivable second strike posed by U.S. BMD. China's quantitative options are numerous: to increase missiles, to increase launchers (both land- and sea-based), to increase the number of warheads atop missiles. Its build-up will be constrained in part by the fear of being drawn into an arms race with the United States of the kind that helped destroy the Soviet Union, and in part by the desire not to increase the perception of China as a major military threat. Qualitative improvements include deployment of mobile intercontinental strike systems, enhanced protection of non-mobile systems, more efficient attack operations, enhanced command and control, and defense penetration aids. These quantitative and qualitative factors will combine in ways to give China's force new operational capabilities and may reinforce the move away from "minimum deterrence." The impact of factors beyond U.S. BMD, such as the New Triad and China's strategic relationships with Russia and India among others, is highly uncertain but seems likely to drive China's understanding of nuclear sufficiency away from its historical foundations in minimalism and small numbers.

See: Brad Roberts, *China and Ballistic Missile Defense: 1955 to 2002 and Beyond*, Institute for Defense Analysis, IDA Paper P-3826, September 2003, p. ES-4, available online at www.fas.org/nuke/guide/china/doctrine/bmd.pdf.

[73] *China's Endeavors for Arms Control, Disarmament and Non-Proliferation*, Information Office of the State Council of the People's Republic of China, Beijing, September 2005, pp. 9, 10.

[74] "China's National Statement on Security Assurances," April 5, 1995 (available at http://www.nti.org/db/china/engdocs/npt0495a.htm) and "Working Paper by the Chinese Delegation to the Conference on Disarmament," (CD/207) August 6, 1981 (available at http://www.nti.org/db/china/engdocs/chsa0881.htm).

[75] For three informative works on Chinese nuclear force developments and their impact on doctrine, see: Michael S. Chase and Evan Medeiros, "China's Evolving Nuclear Calculus: Modernization and Doctrinal Debate," Kenneth Allen and Maryanne Kivlehan-Wise, "Implementing PLA Second Artillery Doctrinal Reforms," both in James C. Mulvenon and David Finkelstein (eds.), *China's Revolution in Doctrinal Affairs: Emerging Trends in the Operational Arts of the Chinese People's Liberation Army*, Alexandria: Center for Naval Analysis, 2005, pp. 119-157, 159-219, respectively; Bates Gill, et al., "The Chinese Second Artillery Corps: Transition to Credible Deterrence," in James C. Mulvenon and Andrew N.D. Yang (eds.), *The People's Liberation Army as Organization*, Santa Monica, CA: RAND, 2002, pp. 510-586.

[76] U.S. Department of Defense, Office of the Secretary of Defense, T*he Military Power of the People's Republic of China 2003*, July 30, 2003, p. 31.

[77] Keith Crane, et al., *Modernizing China's Military: Opportunities and Constraints*, RAND Project Air Force, 2005, p. 202.

[78] U.S. Department of Defense, Office of the Secretary of Defense, *Military Power of the People's Republic of China, 2006*, May 23, 2006, pp. 2, 28.

[79] Ibid., pp. 2, 13-14, 28.

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> While affirming "no first use," Chu Shulong, from the prestigious Qinghua University, also stated in a July 2005 interview printed in a state-owned media that "if foreign countries launch a full-scale war against China and deploy all types of advanced weapons except nuclear weapons, China may renounce this commitment [to no first use] at a time when the country's fate hangs in the balance.

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See: Jeffrey Lewis, "China and No First Use," armscontrolwonk.com, May 31, 2006, URL http://www.armscontrolwonk.com/1082/china-and-no-first-use

[80] Peter W. Rodman, Assistant Secretary of Defense for International Security Affairs, The Military Power of the People's Republic of China, prepared statement before the House Armed Services Committee Thursday, June 22, 2006, p. 5.

[81] U.S. Department of Defense, Office of the Secretary of Defense, *Military Power of the People's Republic of China, 2006*, May 23, 2006, pp. 13-14.

[82] U.S. Defense Intelligence Agency, *People's Republic of China Nuclear Weapons Employment Policy and Strategy*, March 1972, n.p. [sheet 8]. URL: http://www.fas.org/irp/dia/product/prc_72/dia_discussion.htm

[83] Statement of the Government of the People's Republic of China on July 30, 1971, New China News Agency report, August 7, 1971, as quoted in U.S. Defense Intelligence Agency, P*eople's Republic of China Nuclear Weapons Employment Policy and Strategy*, March 1972, Annex A: Force Development and Deployment , n.p. [sheet 4]. URL: http://www.fas.org/irp/dia/product/prc_72/app_a.htm; U.S. Defense Intelligence Agency, *People's Republic of China Nuclear Weapons Employment Policy and Strategy*, March 1972, Annex A: Force Development and Deployment , n.p. [sheet 4]. URL: http://www.fas.org/irp/dia/product/prc_72/app_a.htm

[84] Cited in Robert S. Norris, et al., *Nuclear Weapons Databook Volume V: British, French, and Chinese Nuclear Weapons* (Boulder, CO.: Westview, 1994), pp. 335-336.

[85] U.S. Defense Intelligence Agency, *Nuclear Weapons Systems in China*, DEB-49-84, April 24, 1984, p. 4. Partially declassified and released under FOIA.

[86] Ibid.

[87] Ibid., p. 1. Partially declassified and released under FOIA.

[88] U.S. Defense Intelligence Agency, *Handbook of the Chinese People's Liberation Army*, DDB-2680-32-84, November, p. 70. Released under FOIA. Unofficial sources estimated in 1984 that China possessed approximately 117 land-based ballistic missiles. See: *The Military Balance 1984-1985* (London: International Institute for Strategic Studies, 1984), p. 91.

[80] Foreign Ministry of the People's Republic of China, Fact Sheet: *China: Nuclear Disarmament and Reduction of* [sic], April 27, 2004, p. 1.

[90] U.S. Department of Defense, Office of the Secretary of Defense, *Proliferation: Threat and Response*, April 1996, p. 12. Emphasis added.

[91] U.S. Department of Defense, Office of the Secretary of Defense, *Proliferation: Threat and Response,* November 1997, p. 16. Emphasis added.

[92] Lt. Gen. Michael D. Maples, USA, Director, Defense Intelligence Agency, "Current and Projected National Security Threats to the United States," Statement for the Record before the Senate Armed Services Committee, 28 February 2006, p. 4. Emphasis added. One source estimates that China produced a total of two to five tons of plutonium before it ceased production around 1990. David Wright and Lisbeth Gronlund, *Estimating China's Production of Plutonium for Weapons*, Union of Concerned Scientists, January 16, 2003, p. 1.

[93] Foreign Ministry of the People's Republic of China, Fact Sheet: *China: Nuclear Disarmament and Reduction of* [sic], April 27, 2004, p. 1.

[94] Some analysts believe the Chinese arsenal may be even smaller. See: Jeffrey Lewis, "China's Ambiguous Arsenal," *Bulletin of the Atomic Scientists*, May/June 2005.

[95] U.S. Department of Defense, Office of the Secretary of Defense, *Military Power of the People's Republic of China, 2006*, May 23, 2006, p. 50. Colors and notes added.

[96] Vice Admiral Lowell E. Jacoby, U.S. Navy, Director, Defense Intelligence Agency, *Current and Projected National Security Threats to the United States*, statement for the record before the Senate Select Committee on Intelligence, February 16, 2005, p. 9.

[97] Defense Intelligence Agency, *The Decades Ahead: 1999-2020*, A Primer on the Future Threat, July 1999, p. 38. Reprinted in Rowen Scarborough, *Rumsfeld's War: The Untold Story of America's Anti-Terrorist Commander* (Washington, DC: Regnery Publishing Co., 2004), pp. 194-223. This 2020 estimate assumes a Chinese build-up in response to U.S. deployment of the missile defense system.

[98] U.S. Central Intelligence Agency, Director of Central Intelligence, *Foreign Missiles Developments and the Ballistic Missile Threat Through 2015*, National Intelligence Council, December 2001, p. 8.

[99] U.S. Department of Defense, Office of the Secretary of Defense, "*The Military Power of the People's Republic of China, 2002*," 2002, p. 27.

This forecast appears to include only that portion of the ICBM force that is primarily targeted against the United States. The role currently served by the DF-5A. The language used by the DOD is: "China currently has around 20 ICBMs capable of targeting the United States. This number will increase to around 30 by 2005 and may reach 60 by 2010." Ibid.

[100] U.S. Central Intelligence Agency, Director of Central Intelligence, *Foreign Missiles Developments and the Ballistic Missile Threat Through 2015*, National Intelligence Council, December 2001, p. 8; Robert D. Walpole, Strategic and Nuclear Programs, National Intelligence Council, Central Intelligence Agency, testimony before the International Security, Proliferation and Federal Services Subcommittee of the Senate Governmental Affairs Committee hearing on CIA National Intelligence Estimate of Foreign Missile Developments and the Ballistic Missile Threat Through 2015, March 11, 2002, p. 6.

[101] U.S. Department of Defense, Office of the Secretary of Defense, *The Military Power of the People's Republic of China, 2004*, 2004, p. 37. The estimate of 30 ICBMs by 2005 was first made by the DOD in the 2002 report on China's military capabilities and repeated in subsequent reports. The estimate is not included in the 2005 or 2006 reports. See also: U.S. Central Intelligence Agency, Director of Central Intelligence, F*oreign Missiles Developments and the Ballistic Missile Threat Through 2015*, National Intelligence Council, December 2001, p. 8.

[102] Richard Fisher, "China's 'Power Projection'," *Wall Street Journal*, April 13, 2006.

[103] U.S. Central Intelligence Agency, Director of Central Intelligence, *Foreign Missiles Developments and the Ballistic Missile Threat Through 2015*, National Intelligence Council, December 2001, p. 8. The variables for the estimate are explained in Robert D. Walpole, Strategic and Nuclear Programs, National Intelligence Council, Central Intelligence Agency, testimony before the International Security, Proliferation and Federal Services Subcommittee of the Senate Governmental Affairs Committee hearing on CIA National Intelligence Estimate of Foreign Missile Developments and the Ballistic Missile Threat Through 2015, March 11, 2002, p. 6.

[104] Defense Intelligence Agency, *The Decades Ahead: 1999-2020*, A Primer on the Future Threat, July 1999, p. 38. Reprinted in Rowen Scarborough, *Rumsfeld's War: The Untold Story of America's Anti-Terrorist Commander* (Washington, DC: Regnery Publishing Co., 2004), pp. 194-223.

[105] U.S. Central Intelligence Agency, Director of Central Intelligence, *Foreign Missiles Developments and the Ballistic Missile Threat Through 2015*, National Intelligence Council, December 2001, p. 8; Robert D. Walpole, Strategic and Nuclear Programs, National Intelligence Council, Central Intelligence Agency, testimony before the International Security, Proliferation and Federal Services Subcommittee of the Senate Governmental Affairs Committee hearing on CIA National Intelligence Estimate of Foreign Missile Developments and the Ballistic Missile Threat Through 2015, March 11, 2002, p. 6.

[106] U.S. Central Intelligence Agency, Director of Central Intelligence, "Foreign Missiles Developments and the Ballistic Missile Threat Through 2015," National Intelligence Council, December 2001, p. 8; Robert D. Walpole, Strategic and Nuclear Programs, National Intelligence Council, Central Intelligence Agency, testimony before the International Security, Proliferation and Federal Services Subcommittee of the Senate Governmental Affairs Committee hearing on CIA National Intelligence Estimate of Foreign Missile Developments and the Ballistic Missile Threat Through 2015, March 11, 2002, p. 6.

[107] Even if one assumes that China was capable of equipping (and decided to do so) each DF-5A with as many as eight smaller 250 kt warheads and the DF-31A with three 250 kt warheads each (the most extreme estimates we have seen made by private analysts), the total Megatonnage on China's ICBM force primarily targeted against the United States in 2015 would still be less than it is today (70 Mt vs. 80 Mt).

[108] U.S. Department of Defense, *Selected Military Capabilities of the People's Republic of China*, April 8, 1997, p. 4.

[109] Michael D. Maples, Lieutenant General, U.S. Army, Director, Defense Intelligence Agency, *Current and Projected National Security Threats to the United States*, Statement For the Record before the Senate Armed Services Committee, 28 February 2006, p. 4.

[110] U.S. Central Intelligence Agency, *PRC Defense Policy and Armed Forces*, NIE 13-76, November 11, 1976, p. 13.

[111] Yue Xiaolin and Zhang Jianchu, "Second artillery brigade steps up only night confrontation exercise," *PLA Daily*, Chinese People's Liberation Army, January 27, 2005.

[112] Wang Xuezhong and He Tianjin, "Brigade of Second Artillery tempers support for actual war," *PLA Daily*, Chinese People's Liberation Army, March 31, 2005.

[113] Li Yongfei and He Tianjin, "Second artillery signal regiment improves wartime capabilities," *PLA Daily*, Chinese People's Liberation Army, October 10, 2004.

[114] Gao Zhiwen and Li Yongfei, "Second Artillery base raises overall combat effectiveness through combined training," *PLA Daily*, Chinese People's Liberation Army, July 20, 2006.

[115] Zhang Jianzhong and He Tianjin, "Mobile support capability of SAF base boosted by a large margin," *PLA Daily*, Chinese People's Liberation Army, July 21, 2005.

[116] Robert D. Walpole, Strategic and Nuclear Programs, National Intelligence Council, Central Intelligence Agency, testimony before the International Security, Proliferation and Federal Services Subcommittee of the Senate Governmental Affairs Committee hearing on CIA National Intelligence Estimate of Foreign Missile Developments and the Ballistic Missile Threat Through 2015, March 11, 2002, p. 26. Emphasis added.

[117] Memo, SAC (SOBFB), "Holding Relocatable Targets (RTs) at Risk," February 17, 1987. Secret. Partially declassified and released under FOIA.

[118] Strategic Air Command, "History of the Strategic Air Command 1 January-31 December 1987," Volume III, November 9, 1988, pp. III-31, III-32; Memo, SAC(XOBF), "Relocatable Targets in the SIOP," October 24, 1986. Both documents partially declassified and released under FOIA.

[119] Admiral John T. Mitchell, U.S. Navy, Director, Strategic Systems Program Office, in U.S. Congress, Senate, Committee on Armed Services, Hearings on Department of Defense Authorization for Appropriations for Fiscal Year 1994 and the Future Years Defense Program, Part 7: Nuclear Deterrence, Arms Control and Defense Intelligence, 103rd Cong., 1st sess., 11 May 1993, p. 17.

[120] U.S. Department of Defense, Office of the Secretary of Defense, *Nuclear Posture Review Report*, January 8, 2002 (Submitted to Congress on December 31, 2001), pp. 47-48. Excerpts available via http://www.GlobalSecurity.org.

[121] One notable exception is a report published by the Ballistic Missile Defense Organization in 1995: "Although missile inventories may not have expanded appreciably, this modernization includes the development and deployment of a new generation of IRBMs and ICBMs, and the transition from surface-to-surface missiles

(SSMs) mounted with single or *multiple reentry vehicle (MRV) nuclear warheads* to multiple independently targetable reentry vehicle (MIRV) warheads." Ballistic Missile Defense Organization, BMDO Countermeasure Integration Program, "Country Profiles: China," April 1995, p. 3. Emphasis added.

[122] *Report of the Select Committee on U.S. National Security and Military/Commercial Concerns With the People's Republic of China* (U.S. Government Printing Office, Washington D.C., 1999), Volume I, pp. ix, 77, 78, 186.

The conclusion of the intelligence community's damage assessment was much more sober: "U.S. information acquired by the Chinese could help them develop a MIRV for a future mobile missile." U.S. Central Intelligence Agency, "Key Findings: The Intelligence Community Damage Assessment on the Implications of China's Acquisition of US Nuclear Weapons Information on the Development of Future Chinese Weapons," Press Release, April 21, 1999.

[123] See for example James Risen and Jeff Gerth, "China Is Installing A Warhead Said To Be Based On U.S. Secrets," *New York Times*, May 14, 1999, pp. A1, A10.

[124] Richard R. Fisher, *China Increases it Missile Forces While Opposing U.S. Missile Defense*, The Heritage Foundation, Backgrounder No. 1268, April 7, 1999, pp. 4-5, 6.

The author, it turns out, was also senior analyst for Chairman Chris Cox's Republican Policy Committee that supported production of the Cox report, and a consultant on PLA issues for the Congressionally chartered *US China Security & Economic Review Commission*. Later, in a publication in 2002, the author scaled back his projection for multiple warheads on the DF-5 from eight to five. Richard Fisher, "New Pentagon Report: A Change in U.S. Attitude," *Jamestown Foundation China Brief (Volume 2, Issue 16)*. Yet in a prepared testimony before Congress in July 2005, Fisher repeated the incorrect (compared with U.S. intelligence community statements) claim that three of China's four types of long-range ballistic missiles "may contain multiple warheads" and become "active before 2010." Richard Fisher, International Assessment and Strategy Center, "China's Military Power: An Assessment From Open Sources," prepared testimony before the House Armed Services Committee, July 27, 2005, p. 3.

In July 2006, Fischer's claim about multiple warheads on the DF-31A were perpetuated once more in an interview *Jane's Defence Weekly* made with him in response to the publication of the 2006 DOD report on China's military forces. According to the magazine, Fischer said the DF-31A "may in fact be able to carry up to three payloads," a conclusion he based on his belief that "the DF-31A is similar to the KT-2A" space launch vehicle, which is capable of carrying up to three space payloads. Caitlin Harrington, "US experts warn on China's ICBM moves," *Jane's Defence Weekly*, July 19, 2006, p. 15.

MIRV claim was also repeated in the front-page story Defense News published in response to the 2006 DOD report. The story, which also incorrectly suggested that the DF-31A will have a longer range than the DF-5A, claimed that the DF-31A will have a payload of "up to 5 MIRVs." Wendell Minnick, "China Speeds ICBM Plans: To Debut Missiles With Longer Reach in 2007," Defense News, July 10, 2006, p. 1.

[125] David R. Tanks, *National Missile Defense: Policy Issues and Technological Capabilities*, Institute for Foreign Policy Analysis, July 2000, pp. 1.12, 1.13.

[126] The illustration to the left (DF-31) is from *Military.China.com* and the illustration to the right (DF-5) is from Richard R. Fisher, *China Increases its Missile Forces While Opposing U.S. Missile Defense*, The Heritage Foundation, Backgrounder No. 1268, April 7, 1999, p. 5.

[127] U.S. Central Intelligence Agency, Director of Central Intelligence, *Foreign Missiles Developments and the Ballistic Missile Threat Through 2015*, National Intelligence Council, December 2001, p. 8.

[128] U.S. Department of Defense, Office of the Secretary of Defense, *The Military Power of the People's Republic of China, 2002*, 2002, pp. 27-28.

[129] Robert D. Walpole, Strategic and Nuclear Programs, Central Intelligence Agency, Statement for the Record to the Senate Subcommittee on International Security, Proliferation, and Federal Services on the Ballistic Missiles Threat to the United States, February 9, 2000, pp. 4, 7. Emphasis in original. See also: U.S. Central Intelligence Agency, Director of Central Intelligence, *Foreign Missiles Developments and the Ballistic Missile Threat Through 2015*, National Intelligence Council, December 2001, p. 8.

Despite these predominant U.S. government assessments that China has not developed multiple warhead payloads for its ballistic missiles and that a MIRV capability for mobile missiles is many years away, an internal Ballistic Missile Defense Organization (BMDO) document in 1995 described the Chinese missile development as a "transition from surface-to-surface missiles (SSM) mounted with single or multiple reentry vehicle (MRV) nuclear warheads to multiple independently targetable reentry vehicle (MIRV) warheads. U.S. Ballistic Missile Defense Organization (BMDO), BMDO Countermeasure Integration Program, *Country Profiles: China*, April 1995, p. 3.

[130] U.S. Department of Defense, Office of the Secretary of Defense, *The Military Power of the People's Republic of China, 2002*, 2002, pp. 27-28.

[131] Robert D. Walpole, Strategic and Nuclear Programs, National Intelligence Council, Central Intelligence Agency, testimony before the International Security, Proliferation and Federal Services Subcommittee of the Senate Governmental Affairs Committee hearing on CIA National Intelligence Estimate of Foreign Missile Developments and the Ballistic Missile Threat Through 2015, March 11, 2002, p. 27. Emphasis added.

[132] U.S. Central Intelligence Agency, Director of Central Intelligence, *Foreign Missiles Developments and the Ballistic Missile Threat through 2015*, National Intelligence Council, December 2001, p. 8.

[133] U.S. Central Intelligence Agency, Key Findings: *The Intelligence Community Damage Assessment on the Implications of China's Acquisition of US Nuclear Weapons Information on the Development of Future Chinese Weapons*, Press Release, April 21, 1999.

[134] Bill Gertz and Rowan Scarborough, "China Missile Threat," *Washington Times*, Inside the Ring, September 9, 2005, p. A6. Emphasis added.

[135] The Chinese define ballistic missile ranges as:

Short-range: less than 1,000 km;
Medium-range: between 1,000 and 3,000 km;
Long-range: between 3,000 and 8,000 km;
Intercontinental-range: above 8,000 km.

The Pentagon, in contrast, defines ballistic missile ranges as:

Short-range: less than 1,100 km;
Medium-range: between 1,100 and 2,750 km;
Intermediate-range: between 2,750 and 5,500 km;
Intercontinental range: above 5,500 km.

U.S. Department of Defense, Joint Staff, *Department of Defense Dictionary of Military and Associated Terms*, Joint Publication 1-02, April 12, 2001 (As Amended through April 14, 2006), pp. 332, 485.

The 2006 update does not define intermediate- and intercontinental-range but these definitions were included in the 1998 version. See: U.S. Department of Defense, Joint Staff, *Department of Defense Dictionary of Military and Associated Terms*, Joint Publication 1-02, March 23, 1994 (As amended through June 10, 1998), pp. 221, 222.

[136] Wendell Minnick, "China Speeds ICBM Plans: To Debut Missiles With Longer Reach in 2007," *Defense News*, July 10, 2006, p. 1.

The article also repeated the inaccurate (compared with the U.S. intelligence community) prediction that the DF-31A will carry "up to 5 MIRVs."

[137] The DF-15 (CSS-6) short-range ballistic missile may also have a nuclear capability, although the vast majority of the deployed missiles are thought to be armed with conventional warheads.

[138] Sources: ; Mark A. Stokes, "The People's Liberation Army and China's Space and Missile Development" Lessons from the Past and Prospects for the Future," in Laurie Burkitt (ed.), et al., *The Lessons of History: The Chinese People's Liberation Army at 75* (U.S. Army War College, Strategic Studies Institute, July 2003), p. 203; Bates Gill, et al., "The Chinese Second Artillery Corps: Transition to Credible Deterrence," in James C. Mulvenon and Andrew N.D. Yang (eds.), T*he People's Liberation Army as Organization*, Santa Monica, CA: RAND, 2002, pp. 541-542; U.S. Air Force, National Air Intelligence Center, "China Incrementally Downsizing CSS-2 IRBM Force," *Foreign Missile Update*, NAIC-1030-098B-96, November 1996, pp. 12-13. Reproduced in Bill Gertz, *The China Threat: How the People's Republic Targets America* (Washington, D.C.: Regnery, 2000), pp. 233-234.

[139] Training levels at Dengshahe dropped from 5-8 months per year in late-1980s to 4 months per year in the mid-1990s.

[140] By the mid-1990s, four DF-3A and four DF-21 (Mod 1) launch sites were operational at Jianshui.

[141] Of 16 launch site garrisons built at Lianxiwang, up to 10 were operating DF-3A in 1996, two were under conversion to DF-21 (Mod 1), and DF-3A training was being reduced. Four garrisons may remain until DF-3A is retired.

[142] Of the 12 launch site garrisons at Tonghua in 1996, only 4 (with 8 launchers) still operated the DF-3A, and 3 of those four were candidates for conversion to DF-21.

[143] Yidu may have been converted to DF-21. See Figure 16 for image of possible launch site.

[144] See Figure 20 and 21 for images of DF-4 launch sites at Delingha.

[145] U.S. Department of Defense, Office of the Secretary of Defense, *The Military Power of the People's Republic of China, 2003*, 2003, p. 23.

[146] U.S. Department of Defense, Office of the Secretary of Defense, *The Military Power of the People's Republic of China, 2000*, 2000, p. 17.

[147] The unclassified range of the DF-3A appears to be 2,800 km, which makes it a "long-range" missile rather than a "medium-range" missile as is normally reported. See: U.S. Air Force, National Air Intelligence Center, "China Incrementally Downsizing CSS-2 IRBM Force," *Foreign Missile Update*, NAIC-1030-098B-96, November 1996, p. 12. Reproduced in Bill Gertz, *The China Threat: How the People's Republic Targets America* (Washington, D.C.: Regnery, 2000), pp. 233-234; U.S. Department of Defense, Office of the Secretary of Defense, *The Military Power of the People's Republic of China, 2005*, July 20, 2005, p. 45; U.S. Department of the Air Force, National Air Intelligence Center, *Ballistic and Cruise Missile Threat*, NAIC-1031-0995-03, August 2003, p. 10.

[148] U.S. Defense Intelligence Agency, *Nuclear Weapons Systems in China*, DEB-49-84, April 24, 1984, p. 4. Partially declassified and released under FOIA. Mark Stokes sets the peak at 120 missiles. Mark A. Stokes, "The People's Liberation Army and China's Space and Missile Development" Lessons from the Past and Prospects for the Future," in Laurie Burkitt (ed.), et al., T*he Lessons of History: The Chinese People's Liberation Army at 75* (U.S. Army War College, Strategic Studies Institute, July 2003), p. 203.

The CIA predicted in 1976 that the number of DF-3 launchers would level off at 40 by 1977. U.S. Central Intelligence Agency, *PRC Defense Policy and Armed Forces*, National Intelligence Estimate 13-76, November 11, 1976, p. 23.

[149] U.K. Ministry of Defence, Statement of Defence Estimates 1992 (London: HMSO, July 1992), Cmnd 1981, p. 21, as cited in Robert S. Norris, et al., *Nuclear Weapons Databook Volume V: British, French, and Chinese Nuclear Weapons* (Boulder, CO.: Westview, 1994,) p. 7.

[150] U.S. Department of Defense, Office of the Secretary of Defense, *Military Power of the People's Republic of China, 2006*, May 23, 2006, p. 50.

[151] U.S. Air Force, National Air Intelligence Center, "China Incrementally Downsizing CSS-2 IRBM Force," *Foreign Missile Update*, NAIC-1030-098B-96, November 1996, p. 12. Reproduced in Bill Gertz, *The China Threat: How the People's Republic Targets America* (Washington, D.C.: Regnery, 2000), pp. 233-234.

[152] U.S. Department of Defense, Office of the Secretary of Defense, T*he Military Power of the People's Republic of China, 2004*, 2004, p. 37.

[153] Ibid.

[154] U.S. Air Force, National Air Intelligence Center, "China Incrementally Downsizing CSS-2 IRBM Force," in *Foreign Missile Update*, NAIC-1030-098B-96, November 1996, p. 12. Reproduced in Bill Gertz, T*he China Threat: How the People's Republic Targets America* (Washington, D.C.: Regnery, 2000), pp. 233-234.

[155] Ibid.

[156] U.S. Department of Defense, Office of the Secretary of Defense, *Military Power of the People's Republic of China, 2006*, May 23, 2006, p. 50.

[157] U.S. Department of Defense, Office of the Secretary of Defense, The Military Power of the People's Republic of China, 2005, July 20, 2005, p. 45.

It is also curious that the 2005 DOD table shows far fewer DF-21 missiles than launchers. It is a possibility, although this has not been confirmed, that the DF-21 information in the report table has been reversed by mistake so that it shows 19-23 missiles for 34-38 launchers instead of 34-38 missiles for 19-23 launchers.

[158] U.S. Department of the Air Force, National Air and Space Intelligence Center, *Ballistic and Cruise Missile Threat*, NAIC-1031-0985-06, March 2006, p. 10.

This estimate has not changed since 2003. See: U.S. Department of the Air Force, National Air and Space Intelligence Center, *Ballistic and Cruise Missile Threat*, NAIC-1031-0985-03, February 2002 (Revised August 2003), p. 10.

[159] Robert S. Norris, et al., *Nuclear Weapons Databook Volume V: British, French, and Chinese Nuclear Weapons* (Boulder, CO.: Westview, 1994), p. 388.

[160] Bates Gill, et al., "The Chinese Second Artillery Corps: Transition to Credible Deterrence," in James C. Mulvenon and Andrew N.D. Yang (eds.), *The People's Liberation Army as Organization*, Santa Monica, CA: RAND, 2002, p. 510.

[161] U.S. Department of Defense, Office of the Secretary of Defense, *The Military Power of the People's Republic of China, 2000*, 2000, p. 17.

[162] U.S. Central Intelligence Agency, P*RC Defense Policy and Armed Forces*, National Intelligence Estimate 13-76, November 11, 1976, p. 23.

[163] U.S. Department of Defense, Office of the Secretary of Defense, T*he Military Power of the People's Republic of China, 2005*, July 20, 2005, p. 45.

[164] U.S. Central Intelligence Agency, Director of Central Intelligence, *Foreign Missiles Developments and the Ballistic Missile Threat Through 2015*, National Intelligence Council, December 2001, p. 8.

[165] U.S. Department of Defense, Office of the Secretary of Defense, *The Military Power of the People's Republic of China, 2005*, 2005, p. 28; ; U.S. Department of Defense,

Office of the Secretary of Defense, *The Military Power of the People's Republic of China, 2002*, 2002, p. 27.

[166] U.S. Department of Defense, Office of the Secretary of Defense, *Military Power of the People's Republic of China, 2006*, May 22, 2006, p. 50.

[167] U.S. Department of Defense, Office of the Secretary of Defense, The Military Power of the People's Republic of China, 2005, 2005, p. 28. The 2000 DOD report stated that "China reportedly has built 18 CSS-4 silos." U.S. Department of Defense, Office of the Secretary of Defense, *The Military Power of the People's Republic of China, 2000*, 2000, p. 17.

[168] U.S. Defense Intelligence Agency, *China's Evolving Nuclear Strategies*, Special Defense Intelligence Estimate, DDE-2200-321-85, pp. 1, 8, 10. Document is available at http://www.armscontrolwonk.com.

[169] Richard Fisher, International Assessment and Strategy Center, "China's Military Power: An Assessment From Open Sources," prepared testimony before the House Armed Services Committee, July 27, 2005, p. 8.

[170] Robert S. Norris, et al., *Nuclear Weapons Databook Volume V: British, French, and Chinese Nuclear Weapons* (Boulder, CO.: Westview, 1994), p. 364.

[171] U.S. Department of Defense, Office of the Secretary of Defense, *The Military Power of the People's Republic of China, 2002*, 2002, p. 27.

[172] U.S. Department of Defense, Office of the Secretary of Defense, *The Military Power of the People's Republic of China, 2005*, 2005, p. 29.

[173] General Eugene Habiger, Command of U.S. Strategic Command, DOD News Briefing, June 16, 1998, 2:15 pm.

[174] The DOD stated in 2001 that the range of DF-5A is "over 13,000 kilometers." U.S. Department of Defense, Office of the Secretary of Defense, *Proliferation: Threat and Response*, January 2001, p. 15.

[175] U.S. Defense Intelligence Agency, *Handbook of the Chinese People's Liberation Army*, DDB-2680-32-84, November, pp. 71, A-44. Released under FOIA.

[176] U.S. Department of Defense, Office of the Secretary of Defense, *Military Power of the People's Republic of China, 2006*, May 23, 2006, pp. 27, 50.

The inconsistent range estimates made by the DOD for the DF-5A resulted in a front-page story in Defense News in July 2006 which said that China was about to deploy the DF-31A, incorrectly described as "the first Chinese ICBM that could hit Washington, D.C., Paris or Madrid." Wendell Minnick, "China Speeds ICBM Plans: To Debut Missiles With Longer Reach in 2007," *Defense News*, July 10, 2006, p. 1.

[177] U.S. Department of Defense, Office of the Secretary of Defense, *Military Power of the People's Republic of China, 2005*, July 20, 2005, p. 28.

[178] *Report of the Select Committee on U.S. National Security and Military/Commercial Concerns With the People's Republic of China* (U.S. Government Printing Office, Washington D.C., 1999), Volume I, p. xiv.

[179] Alastair Iain Johnston, et al., *The Cox Committee Report: An Assessment*, Center for International Security and Cooperation, Stanford University, December 1999, pp. 16-17, 36, 84-86.

[180] Richard R. Fisher, *China Increases its Missile Forces While Opposing U.S. Missile Defense*, The Heritage Foundation, Backgrounder No. 1268, April 7, 1999, pp. 4-5, 6.

[181] See: U.S. Central Intelligence Agency, Director of Central Intelligence, *Foreign Missiles Developments and the Ballistic Missile Threat Through 2015*, National Intelligence Council, December 2001, p. 8; Robert D. Walpole, Strategic and Nuclear Programs, National Intelligence Council, Central Intelligence Agency, testimony before the International Security, Proliferation and Federal Services Subcommittee of the Senate Governmental Affairs Committee hearing on CIA National Intelligence Estimate of Foreign Missile Developments and the Ballistic Missile Threat Through 2015, March 11, 2002, p. 6.

[182] U.S. Department of Defense, Office of the Secretary of Defense, *The Military Power of the People's Republic of China, 2002*, 2002, p. 27.

[183] U.S. Department of Defense, Office of the Secretary of Defense, *Military Power of the People's Republic of China, 2006*, May 23, 2006, p. 27.

The most recent test flight took place on September 13, 2006. The missile reportedly flew approximately 2,500 km west into the Takla Makan Desert. "China launches one more intercontinental ballistic missile," *ITAR-TASS*, September 5, 2006.

[184] U.S. Department of Defense, *Selected Military Capabilities of the People's Republic of China*, April 8, 1997, p. 4.

[185] U.S. Department of Defense, Office of the Secretary of Defense, *Military Power of the People's Republic of China, 2006*, May 23, 2006, p. 50.

[186] U.S. Central Intelligence Agency, Director of Central Intelligence, *Foreign Missiles Developments and the Ballistic Missile Threat Through 2015*, National Intelligence Council, December 2001, p. 8.

[187] U.S. Department of Defense, Office of the Secretary of Defense, *Military Power of the People's Republic of China, 2006*, May 23, 2006, p. 27.

[188] U.S. Department of Defense, Office of the Secretary of Defense, *Military Power of the People's Republic of China, 2006*, May 23, 2006, p. 27. Emphasis added.

[189] U.S. Navy, Commander, Naval Submarine Forces, *Submarine Force Brief*, n.d. [January 2006], slide 5; U.S. Department of Defense, Office of the Secretary of Defense, *Military Power of the People's Republic of China, 2006*, May 23, 2006, p. 4.

[190] U.S. Department of Defense, Office of the Secretary of Defense, *The Military Power of the People's Republic of China, 2003*, 2003, p. 26; U.S. Department of Defense,

Office of the Secretary of Defense, *The Military Power of the People's Republic of China, 2002*, 2002, p. 22.

[191] Neil King, Jr., "As China Boosts Defense Budget, U.S. Military Hedges Its Bets," *Wall Street Journal*, April 20, 2006, p. 1. A letter to the editor sent to *Wall Street Journal* to correct the projections for the Chinese submarine force was ignored by paper. The "five to one" estimate cited by the article is a misrepresentation of a Heritage Foundation publication from April 2006, which states that by 2025, "Chinese attack submarines could easily outnumber U.S. submarines *on station* in the Pacific by a five to one ratio…." The number of U.S. submarines *on station* is obviously much smaller than the total number of submarines in the fleet. See John J. Tkacik, Jr., *Hedging Against China*, Heritage Foundation, April 18, 2006, p. 2, emphasis added.

[192] John J. Tkacik, Jr., *Hedging Against China*, Heritage Foundation, April 18, 2006, p. 2.

[193] John J. Tkacik, Jr., *China's Submarine Challenge*, Heritage Foundation, Web Memo, March 1, 2006, p. 1.

[194] *Alert: China's Navy Will Overtak US Fleet by 2015*, American Shipbuilding Association, n.d. [downloaded May 18, 2006], available at http://www.americanshipbuilding.com.

[195] U.S. Department of Defense, Office of the Secretary of Defense, *The Military Power of the People's Republic of China, 2004*, 2004, p. 29.

[196] Ibid.

[197] *Report of the Select Committee on U.S. National Security and Military/Commercial Concerns With the People's Republic of China* (U.S. Government Printing Office, Washington D.C., 1999), Volume I, p. 187.

[198] U.S. Department of Defense, Office of the Secretary of Defense, *Military Power of the People's Republic of China, 2006*, May 23, 2006, p. 27.

[199] John J. Tkacik, Jr., *Hedging Against China*, Heritage Foundation, April 18, 2006, p. 3.

[200] *China's National Defense in 2000*, Information Office of the State Council of the People's Republic of China, Beijing, October 2000, p. 10.

[201] U.S. Defense Intelligence Agency, *Nuclear Weapons Systems in China*, DEB-49-84, April 24, 1984, p. 4. Partially declassified and released under FOIA.

[202] Bill Gertz, "U.S Secrets Aboard Latest Chinese Sub," *Washington Times*, December 6, 1999, p. 1.

[203] U.S. Department of Defense, Office of the Secretary of Defense, *The Military Power of the People's Republic of China, 2002*, 2002, pp. 22, 27.

[204] *Worldwide Maritime Challenges*, U.S. Department of the Navy, Office of Naval Intelligence, 2004, p. 37. Obtained under FOIA.

[205] See for example: Bill Gertz, "China tests ballistic missile submarine," *Washington Times*, December 3, 2004.

[206] U.S. Department of Defense, Office of the Secretary of Defense, *The Military Power of the People's Republic of China, 2004*, 2004, p. 40.

[207] A recent report from the Congressional Research Service states that the first two Jin-class boats are expected to enter service in 2008 and 2010. Ronald O'Rourke, China Naval Modernization: Implications for U.S. Naval Capabilities – Background and Issues for Congress, Congressional Research Service, RL33153, July 26, 2006, p. 74.

[208] *Report of the Select Committee on U.S. National Security and Military/Commercial Concerns With the People's Republic of China* (U.S. Government Printing Office, Washington D.C., 1999), Volume I, pp. 180, 187.

The source listed by the Cox report for the JL-2 range is: Li Peng, "Report on the Outline of the Ninth Five-Year Plan for National Economic and Social Development and Long-Range Objectives to the Year 2010," delivered to the Fourth Session of the Eighth National People's Congress on March 5, 1996.

[209] Bill Gertz, "U.S. Secrets Aboard Latest Chinese Sub," *Washington Times*, December 6, 1999, p. 1.

[210] John A. Tirpak, "Chinese Military Is Catching Up – Fast," *Air Force Magazine*, September 2005, p. 14.

[211] U.S. Department of Defense, Office of the Secretary of Defense, *Military Power of the People's Republic of China, 2006*, May 23, 2006, p. 50.

[212] *Worldwide Maritime Challenges*, U.S. Department of the Navy, Office of Naval Intelligence, 2004, p. 37. Obtained under FOIA.

[213] Dr. Lyle Goldstein and Lieutenant Commander Bill Murray, U.S. Navy, "China's Subs Lead the Way," *Proceedings*, U.S. Naval Institute Press, March 2003, p. 59.

[214] "China – Type 094 Submarine Launches SLBM," *The Submarine Review*, July 2005, p. 119. Emphasis added.

[215] *Worldwide Maritime Challenges*, U.S. Department of the Navy, Office of Naval Intelligence, 2004, p. 37. Obtained under FOIA.

[216] U.S. Department of Defense, Office of the Secretary of Defense, *The Military Power of the People's Republic of China, 2003*, July 30, 2003, p. 31.

[217] U.S. Department of the Air Force, National Air and Space Intelligence Center, B*allistic and Cruise Missile Threat*, NSAIC-1031-0985-06, March 2006, p. 26; U.S. Department of Defense, Office of the Secretary of Defense, *Military Power of the People's Republic of China, 2006*, May 23, 2006, p. 29.

[218] *Worldwide Maritime Challenges*, U.S. Department of the Navy, Office of Naval Intelligence, 2004, p. 14. Obtained under FOIA.

[219] U.S. Department of Defense, Office of the Secretary of Defense, *The Military Power of the People's Republic of China, 2003*, July 30, 2003, p. 27.

[220] U.S. Department of Defense, Office of the Secretary of Defense, *The Military Power of the People's Republic of China 2005*, July 20, 2005, p. 5.

[221] U.S. Department of Defense, Office of the Secretary of Defense, *Military Power of the People's Republic of China, 2006*, May 23, 2006, p. 4.

[222] U.S. Department of Defense, Office of the Secretary of Defense, *The Military Power of the People's Republic of China, 2003*, July 30, 2003, p. 27.

The Congressional Research Service stated in a report in 2006 that the first two Shang-class boats were expected to enter service in 2005, and that construction of a third may have begun. Ronald O'Rourke, *China Naval Modernization: Implications for U.S. Naval Capabilities – Background and Issues for Congress*, Congressional Research Service, RL33153, July 26, 2006, p. 75.

[223] *Worldwide Maritime Challenges*, U.S. Department of the Navy, Office of Naval Intelligence, 2004, p. 14. Obtained under FOIA.

[224] U.S. Department of Defense, *Selected Military Capabilities of the People's Republic of China*, April 8, 1997, p. 8.

That same year, according to the 1999 Cox Report, "the PRC stole classified U.S. developmental research concerning very sensitive detection techniques that, if successfully concluded, could be used to threaten U.S. submarines." *Report of the Select Committee on U.S. National Security and Military/Commercial Concerns With the People's Republic of China* (U.S. Government Printing Office, Washington D.C., 1999), Volume I, p. xiii.

[225] U.S. Defense Intelligence Agency, *People's Republic of China Nuclear Weapons Employment Policy and Strategy*, March 1972, n.p. [sheets 6-7]. URL: http://www.fas.org/irp/dia/product/prc_72/dia_discussion.htm

[226] U.S. Department of Defense, *Selected Military Capabilities of the People's Republic of China 2002*, 2002, p. 3.

[227] U.S. Department of Defense, Office of the Secretary of Defense, *Military Power of the People's Republic of China, 2006*, May 23, 2006, pp. 11-12, 15.

[228] Data obtained by Hans M. Kristensen from the U.S. Navy Office of Naval Intelligence under the Freedom of Information Act.

[229] The complete absence of patrols in 2005 may also be related to rumors about technical problems on the Han-class submarines.

[230] U.S. Navy, Office of Naval Intelligence, e-mail to Hans M. Kristensen, August 25, 2005.

[231] U.S. Department of Defense, Joint Staff, *Department of Defense Dictionary of Military and Associated Terms*, Joint Publication 1-02, April 12, 2001 (as amended through August 31, 2005), pp. 39, 263, 386, 405, 512.

[232] U.S. Central Intelligence Agency, *PRC Defense Policy and Armed Forces*, National Intelligence Estimate 13-76, November 11, 1976, p. 43.

[233] Dr. Lyle Goldstein and Bill Murray, "From Humble Origins: China's Submarine Force Comes of Age," *Undersea Warfare*, Winter 2004, n.p. [html version p. 5].

[234] "Ta Kung Pao on Nuclear Submarine Base," FBIS-CHI-89-091, May 12, 1989, pp. 32-33, translates to articles appearing in *Ta Kung Pao* by Ching Ti, "Visit to China's Nuclear Submarine Unit," May 7, 1989, p. 1, and May 8, 1989, p. 2; cited in Robert S. Norris, et al., *Nuclear Weapons Databook, Volume V: British French, and Chinese Nuclear Weapons* (Boulder, CO.: Westview, 1994), p. 369.

[235] The Han-class's involvement in the 1985 voyage is identified in Dr. Lyle Goldstein and Bill Murray, "From Humble Origins: China's Submarine Force Comes of Age," *Undersea Warfare*, Winter 2004, n.p. [html version pp. 2, 6].

[236] See for example: "Type 09-1 Han Class," n.d. [accessed January 19, 2006], URL http://www.globalsecurity.org/military/world/china/type-91.htm.

[237] Bill Gertz and Rowan Scarborough, "China sub untracked," *Washington Times*, June 1, 2001.

The reporters appear to mistakenly identify the submarine as a Ming-class diesel submarine, which does not match the other information provided in the article. The term "undetected SSN deployment," the month-long underwater operations, and the statement that "Mings will be replaced in the next decade by a new general of nuclear attack submarines called the Type 093," suggest that the submarine may have been a Han-class nuclear-powered attack submarine.

[238] Iris Tsang, "China's navy floats a warning to Taiwan," *Asia Times Online*, November 25, 2003; "China's submarine poses no threat to Japan," *People's Daily*, November 19, 2003.

[239] "Type 09-1 Han Class," n.d. [accessed January 19, 2006], URL http://www.globalsecurity.org/military/world/china/type-91.htm.

[240] U.S. Department of Defense, Office of the Secretary of Defense, *The Military Power of the People's Republic of China, 2005*, July 20, 2005, p. 13.

[241] U.S. Central Intelligence Agency, *Communist China's Strategic Weapons Program*, NIE 13-8-67, August 3, 1967, p. 1.

[242] U.S. Central Intelligence Agency, *Communist China's Strategic Weapons Program*, NIE 13-8-69, February 27, 1969, p. 10.

[243] U.S. Defense Intelligence Agency, *People's Republic of China Nuclear Weapons Employment Policy and Strategy*, March 1972, Annex A: Force Development and Deployment, n.p. [sheets 2, 3]. URL: http://www.fas.org/irp/dia/product/prc_72/app_a.htm

[244] National Security Council, Defense Program Review Committee, *U.S. Strategic Objectives and Force Posture Executive Summary*, January 3, 197[2], Top Secret, p. 103. Partially declassified and released under FOIA to National Security Archive.

[245] U.S. Defense Intelligence Agency, *People's Republic of China Nuclear Weapons Employment Policy and Strategy*, March 1972, Annex C: Command and Control, p. 1. URL: http://www.fas.org/irp/dia/product/prc_72/app_c.htm

[246] Robert S. Norris, et al., *Nuclear Weapons Databook Volume V: British, French, and Chinese Nuclear Weapons* (Boulder, CO.: Westview, 1994), pp. 420-421.

[247] U.S. Defense Intelligence Agency, *Handbook of the Chinese People's Liberation Army*, DDB-2680-32-84, November 1984, pp. 65, 70. Released under FOIA. Emphasis added.

[248] U.S. Defense Intelligence Agency, *People's Republic of China Nuclear Weapons Employment Policy and Strategy*, March 1972, Annex A: Force Development and Deployment, p. 3.

[249] U.S. Central Intelligence Agency, *PRC Defense Policy and Armed Forces*, National Intelligence Estimate 13-76, November 11, 1976, p. 49.

[250] U.S. Department of Defense, Office of the Secretary of Defense, *The Military Power of the People's Republic of China, 2005*, July 20, 2005, p. 29.

Some private and semi-official sources have already predicted that the land-attack cruise missiles will have a nuclear capability. Mark Stokes, for example, who cited an unidentified 1993 DOD report, wrote in 1999 that there are "clear indications that China will likely have a nuclear warhead sized for one of their cruise missiles and are seriously considering adding another leg to their nuclear force." Mark A. Stokes, *China's Strategic Modernization: Implications for the United States*, Strategic Studies Institute, U.S. Army War College, September 1999, p. 82.

[251] U.S. Department of the Air Force, National Air and Space Intelligence Center, Ballistic and Cruise Missile Threat, NAIC-1031-0985-06, March 2006, p. 26.

[252] Wendell Minnick, "China tests new land-attack cruise missile," *Jane's Missiles & Rockets*, September 21, 2004; U.S. Defense Intelligence Agency, written answer to question no. 7 from the World Wide Threat Hearing by the Senate Select Committee on Intelligence, February 11, 2003, p. 10, attached to Letter, Vice Admiral L. E. Jacoby, Director, Defense Intelligence Agency, to Pat Roberts, Chairman, Select Committee on Intelligence, U.S. Senate, June 30, 2003.

[253] Charles H. Murphey, "Mainland China's Evolving Nuclear Deterrent," Bulletin of the Atomic Scientists, January 1972, p. 29; and referenced in W. W. Whitson, *Chinese Nuclear Strategy Policies, 1958-1972: The Impact of External Threats, Internal Politics, and Technology*, Rand Corporation, R-1232-PR, July 1973, p. 70. Obtained under FOIA by the Peter Hayes.

[254] W. W. Whitson, *Chinese Nuclear Strategy Policies, 1958-1972: The Impact of External Threats, Internal Politics, and Technology*, Rand Corporation, R-1232-PR, July 1973, pp. 70, 72. Obtained under FOIA by the Peter Hayes.

[255] U.S. Defense Intelligence Agency, *People's Republic of China Nuclear Weapons Employment Policy and Strategy*, March 1992, n.p. [sheet 6]. URL: http://www.fas.org/irp/dia/product/prc_72/discussion.htm

[256] U.S. Central Intelligence Agency, *PRC Defense Policy and Armed Forces*, NIE 13-76, November 11, 1976, p. 15.

[257] U.S. Defense Intelligence Agency, *Handbook of the Chinese People's Liberation Army*, November 1984, p. 36. Released under FOIA.

[258] U.S. Central Intelligence Agency, *PRC Defense Policy and Armed Forces*, National Intelligence Estimate 13-76, November 11, 1976, p. 16.

[259] U.S. Defense Intelligence Agency, *Handbook of the Chinese People's Liberation Army*, November 1984, p. 79. Released under FOIA.

[260] Ningxia Ribao, "The Might of Helan Shan Shakes," June 29, 1982, p. 1, translated in "Exercise Simulates Tactical Nuclear Weapons," JPRS-China, August 3, 1982, p. K8; "China Shows it Has Tactical Atomic Weapons," Washington Times, July 14, 1982, p. 5. Both referenced in Robert S. Norris, et al., *Nuclear Weapons Databook Volume V: British, French, and Chinese Nuclear Weapons* (Boulder, CO.: Westview, 1994), p. 371.

[261] S*IPRI Yearbook 1989: World Armaments and Disarmament* (Oxford University Press, 1989), pp. 35-36.

[262] U.S. Central Intelligence Agency, *PRC Defense Policy and Armed Forces*, National Intelligence Estimate 13-76, November 11, 1976, pp. 16, 65.

[263] Ibid., p. 51.

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[265] U.S. Defense Intelligence Agency, *Nuclear Weapons Systems in China*, DEB-49-84, April 24, 1984, pp. 3-4. Partially declassified and released under FOIA.

[266] Ibid., p. 3.

[267] Ibid., p. 4.

[268] U.S. Defense Intelligence Agency, *Handbook of the Chinese People's Liberation Army*, November 1984, p. iii. Released under FOIA.

[269] Ibid., p. 36.

[270] Ibid.

[271] A later Handbook, for example, stated that China had 24 SLBMs (including 12 JL-2s which had not been developed at the time) and 120-150 tactical warheads for artillery pieces, multiple rocket launchers, and demolition charges. U.S. Defense Intelligence Agency, *China Country Handbook*, DOD-2630-CH-008-00, March 2000, p. 123. Obtained under FOIA.

[272] U.S. Defense Intelligence Agency, *Nuclear Weapons Systems in China*, DEB-49-84, April 24, 1984, pp. 3-4. Partially declassified and released under FOIA.

[273] U.S. Defense Intelligence Agency, *Handbook of the Chinese People's Liberation Army*, November 1984, p. 71. Released under FOIA. Emphasis added.

[274] U.S. Defense Intelligence Agency, "People's Republic of China Nuclear Weapons Employment Policy and Strategy," March 1972, Annex D: Highlights of the Nuclear Weapons Development Program, p. 1. URL: http://www.fas.org/irp/dia/product/prc_72/app_d.htm

[275] Duan Zijun, ed., *China Today: Aviation Industry* Robert S. Norris, et al., *Nuclear Weapons Databook Volume V: British, French, and Chinese Nuclear Weapons* (Boulder, CO.: Westview, 1994), p. 386; (Beijing: China Aviation Industry Press, 1989), p. 155; as referenced in Robert S. Norris, et al., *Nuclear Weapons Databook Volume V: British, French, and Chinese Nuclear Weapons* (Boulder, CO.: Westview, 1994), pp. 395, 421.

[276] U.S. Defense Intelligence Agency, *People's Republic of China Nuclear Weapons Employment Policy and Strategy*, March 1972, Annex D: Highlights of the Nuclear Weapons Development Program, p. 1. URL: http://www.fas.org/irp/dia/product/prc_72/app_d.htm

[277] Ibid., Annex A: Force Development and Deployment, n.p. [sheet 7], URL: http://www.fas.org/irp/dia/product/prc_72/app_a.htm

[278] U.S. Defense Intelligence Agency, *Nuclear Weapons Systems in China*, DEB-49-84, April 24, 1984, p. 4. Partially declassified and released under FOIA.

[279] The U.S. Defense Intelligence Agency in 1984 estimated the range of the A-5 as 796 km (430 nm). U.S. Defense Intelligence Agency, *Handbook of the Chinese People's Liberation Army*, November 1984, p. A-38. Released under FOIA.

[280] See: U.S. Defense Intelligence Agency, *A Guide to Foreign tactical Nuclear Weapon Systems Under the Control of Ground Force Commanders*, DST-1040A-541-87, September 4, 1987, p. 79. Partially declassified and released under FOIA; as cited in Robert S. Norris, *Nuclear Weapons Databook Volume V: British, French, and Chinese Nuclear Weapons* (Boulder, CO.: Westview, 1994), p. 386, footnote 1.

[281] U.S. National Security Council, *Report to Congress on Status of China, India and Pakistan Nuclear and Ballistic Missile Programs*, n.d. [July 28, 1993], p. 1. Obtained under FOIA by the Federation of American Scientists.

[282] U.S. Air Force, National Air Intelligence Center, "China Incrementally Downsizing CSS-2 IRBM Force," *Foreign Missile Update*, NAIC-1030-098B-96, November 1996, p. 12. Reproduced in Bill Gertz, *The China Threat: How the People's Republic Targets America* (Washington, D.C.: Regnery, 2000), pp. 233-234.

[283] *Report of the Select Committee on U.S. National Security and Military/Commercial Concerns With the People's Republic of China* (U.S. Government Printing Office, Washington D.C., 1999), Volume I, pp. 187, 188.

[284] U.S. Defense Intelligence Agency, *A Primer on the Future Threat: The Decades Ahead: 1999-2020*, July 1999, p. 38.

[285] U.S. Air force, National Air Intelligence Center, *Ballistic and Cruise Missile Threat*, September 2000, p. 6.

[286] Another apparently not so reliable DIA publication at the time stated: "The 2d Artillery Corps reportedly has 1980 to 200 nuclear warheads at its disposal our of a total Chinese inventory of 330 to 350. The PLAN and PLAAF combined have 24 sea-launched ballistic missiles (SLBMs) and 120 to 150 warheads (various artillery pieces, multiple rocket launch systems, and demolition charges) respectively." U.S. Defense Intelligence Agency, *China Country Handbook*, DOD-2630-CH-008-00, March 2000, p. 123. Obtained under FOIA.

[287] U.S. Department of Defense, Office of the Secretary of Defense, *The Military Power of the People's Republic of China, 2000*, 2000, pp. 17, 20.

[288] U.S. Department of the Air Force, National Air and Space Intelligence Center, *Ballistic and Cruise Missile Threat*, NAIC-1031-0985-06, March 2006, p. 4; U.S. Department of the Air Force, National Air and Space Intelligence Center, *Ballistic and Cruise Missile Threat*, NAIC-1031-0985-03, February 2002 (Revised August 2003), p. 4.

[289] U.S. Department of Defense, Office of the Secretary of Defense, *The Military Power of the People's Republic of China, 2006*, May 23, 2006, p. 50.

[290] Ronald O'Rourke, *China Naval Modernization: Implications for U.S. Naval Capabilities – Background and Issues for Congress*, Congressional Research Service, RL33153, July 26, 2006, p. 17.

[291] *The Chinese Military, An Emerging Maritime Challenge*, Lexington Institute, May 2004, pp. 13-14.

[292] U.S. Department of Defense, Office of the Secretary of Defense, *Proliferation: Threat and Response*, January 2001, p. 17.

[293] U.S. Department of Defense, Office of the Secretary of Defense, "*The Military Power of the People's Republic of China, 2005*," July 20, 2005, p. 29.

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[294] U.S. Department of Defense, Office of the Secretary of Defense, *Military Power of the People's Republic of China, 2006*, May 23, 2006, pp. 26, 27. Emphasis added.

[295] Wendell Minnick, "China tests new land-attack cruise missile," *Jane's Missiles & Rockets*, September 21, 2004.

[296] U.S. Department of the Air Force, National Air and Space Intelligence Center, *Ballistic and Cruise Missile Threat*, NAIC-1031-0985-06, March 1006, p. 26.

[297] Rich Chang, "China to Deploy Cruise Missile: NSB," *Taipei Times*, April 24, 2005, p. 1.

[298] Richard Fisher, *China's New Strategic Cruise Missiles: From the Land, Sea and Air*, International Assessment and Strategy Center, June 3, 2005, n.p. [sheets 2, 3, 6].

[299] Vice Admiral Lowell E. Jacoby, U.S. Navy, Director, Defense Intelligence Agency, "Current and Projected National Security Threats to the United States," statement for the record before the Senate Select Committee on Intelligence, February 16, 2005, p. 13.

[300] U.S. Department of Defense, Office of the Secretary of Defense, "*The Military Power of the People's Republic of China, 2004*," 2004, p. 29. Emphasis added.

[301] U.S. Department of Defense, *Selected Military Capabilities of the People's Republic of China*, April 8, 1997, p. 4.

[302] Short-range missile launches are not included in the table. Chronology is based on: *Encyclopedia Astronautica*, a private web site that includes a very informative and comprehensive section on China (http://www.astronautix.com/country/china.htm); "Chronology of Chinese Nuclear Weapons-Related Events, 1949-1992," in Robert S. Norris et al., *British, French and Chinese Nuclear Weapons* (Boulder, CO: Westview Press, 1994), pp. 331-336; and "Chinese Missile Chronology," Nuclear Threat Initiative/Center for Nonproliferation Studies at the Monterey Institute of International Studies, available at http://www.nti.org/e_research/profiles/China/Missile/5657.html.

[303] The facilities are also used to launch satellites.

[303] U.S. Department of Defense, Office of the Secretary of Defense, *Nuclear Posture Review Report*, January 8, 2002 (Submitted to Congress on December 31, 2001), pp. 46, 47. Excerpts available via http://www.GlobalSecurity.org.

[305] See Robert S. Norris et al., *British, French and Chinese Nuclear Weapons* (Boulder, CO: Westview Press, 1994), pp. 349-350; Barry Naughton, "The Third Front: Defence Industrialization in the Chinese Interior," *China Quarterly*, No. 115 (September 1988), pp. 351-386; Barry Naughton, "Industrial Policy During the Cultural Revolution: Military Preparation, Decentralization, and Leaps Forward," in William A. Joseph, Christine P. W. Wong, and David Zweig, eds., *New Perspectives on the Cultural Revolution* (Cambridge, MA: Harvard University Press, 1991), pp. 153-181. The first line is the industrialized coastal region that is vulnerable to attack. The second line is the inland region and the third line is the secure base area deep in the interior of the country. Naughton translates *san xian* as "third front" instead of third line.

[306] Mao placed Deng Xiaoping in charge of the Third Line project. "The cost of the Third Line was nearly 40 percent of China's capital budget from 1963-65, 53 percent in the next five years, and 45 percent up to 1975 .... No project of Mao's was to prove so costly, so labor-intensive, so economically unfeasible, or so disruptive as the Third Line." Harrison E. Salisbury, *The New Emperors: China in the Era of Mao and Deng* (Boston: Little Brown and Company, 1992), pp. 126, 127.

[307] U.S. Defense Intelligence Agency, *People's Republic of China Nuclear Weapons Employment Policy and Strategy*, March 1972, Annex A: Force Development and

Deployment, n.p. [sheet 2]. URL: http://www.fas.org/irp/dia/product/prc_72/app_a.htm

[308] Dr. Lyle Goldstein and Bill Murray, "From Humble Origins: China's Submarine Force Comes of Age," *Undersea Warfare*, Winter 2004, n.p. [html version p. 5].

[309] Wilson Lewis and Xue Litai, *China's Strategic Seapower* (Stanford University Press, 1994), p. 123.

[310] Desmond Ball and Jeffrey Richelson, ed., *Strategic Nuclear Targeting* (Cornell University Press: 1986), pp. 62, 82.

[311] U.S. Pacific Command, CINCPAC Command History 1960, 1961, pp. 19-20. Secret. Partially declassified and released under FOIA.

[312] Ibid., p. 42.

[313] Desmond Ball and Jeffrey Richelson, ed., *Strategic Nuclear Targeting* (Cornell University Press: 1986), p. 82.

[314] Carl Kaysen to General Maxwell Taylor, Military Representative to the President, "Strategic Air Planning and Berlin," 5 September 1961, Top Secret, excised copy, with cover memoranda to Joint Chiefs of Staff Chairman Lyman Lemnitzer. Partially declassified and released to National Security Archive. Available on the Internet at http://www.gwu.edu/~nsarchiv/NSAEBB/NSAEBB56/BerlinC1.pdf

[315] U.S. Strategic Air Command, *History of the Strategic Air Command, 1 January 1958-30 June 1958*, Historical Study No. 78, Volume I, p. 108. Partially declassified and released under FOIA appeal.

[316] Director of Central Intelligence, *Communist China's Advanced Weapons Program*, Special National Intelligence Estimate No. 13-2-63, July 24, 1963, pp. 1-2. Released under FOIA to the National Security Archive. The document is available on the Internet at [http://www.gwu.edu/~nsarchiv/NSAEBB/NSAEBB19/01-01.htm].

[317] U.S. Department of Defense, Office of the Assistant to the Secretary of Defense (Atomic Energy), "History of the Custody and Deployment of Nuclear Weapons: July 1945Through September 1977," February 1978, p. 180. Top Secret. Partially declassified and released under FOIA to Robert S. Norris, Natural Resources Defense Council; Robert Norris, et al., "Where They Were," *Bulletin of the Atomic Scientists*, November/December 1999, Vol. 55, No. 6, p. 30. Available on the Internet at http://www.thebulletin.org/issues/1999/nd99/nd99norris.html

[318] B. F. Jaeger and M. Weiner, "Military Aspects of a Study of the Implications of a Communist Chinese Nuclear Capability," RAND Memorandum RM-3418-PR, March 1963, p. v. Released under FOIA.

[319] In addition to a more "pure" strategic targeting, non-strategic nuclear forces continued to provide support to smaller contingencies in the region. PACOM's analysis in support of the annual Nuclear Weapons Requirements Study from April

1962 for the Fiscal Year 1965, for example, contained a "greater recognition of the Allied nuclear capable delivery vehicles to give fire support in the Taiwan and Korean area." U.S. Pacific Command, CINCPAC *Command History 1962*, Volume I, April 30, 1963, p. 38. Emphasis added. Partially declassified and released under FOIA.

[320] U.S. Strategic Air Command, *History of Strategic Air Command January-June 1962*, Historical Study No. 91, Vol. I, p. 86. Partially declassified and released under FOIA.

[321] U.S. Strategic Air Command, *History of the Strategic Air Command July-December 1963*, Historical Study No. 93, Volume I, August 1964, pp. 102, 103. Partially declassified and released under FOIA.

[322] U.S. Strategic Air Command, History of the Strategic Air Command January-June 1964, Historical Study No. 95, Volume I, January 1965, p. 106. Partially declassified and released under FOIA.

[323] Ibid., p. 107.

The program, however, was effected on a scheduled basis, and the B-52 Reflex operation did not completely replace the B-47 Air Mail force until the second week of April 1964.

[324] U.S. Strategic Air Command, *History of the Strategic Air Command July-December 1965*, Volume I, December 1966, p. 200. Partially declassified and released under FOIA.

[325] Ibid., pp. 200, 201.

[326] U.S. Pacific Command, *CINCPAC Command History 1966*, Volume I, June 3, 1967, pp. 64-65. Partially declassified and released under FOIA.

China was described as a "disruptive element in underdeveloped countries and a military threat in Asia." Ibid.

[327] U.S. Pacific Command, *CINCPAC Command History 1967*, Volume I, March 28, 1968, p. 96. Partially declassified and released under FOIA.

[328] Ibid., p. 93.

[329] U.S. Department of State, *A Study of U.S.-Soviet Military Relationships 1957-1976: Foreign Policy Implications*, Staff Study, December 18, 1967, Appendix A, p. 7.

[330] Joint Staff, *Joint Staff Briefing of the Single Integrated Operational Plan (SIOP)*, January 27, 1969, Top Secret, p. 5. Partially declassified and released under FOIA to the National Security Archive. Available at http://www.gwu.edu/~nsarchiv/NSAEBB/NSAEBB173/index.htm

[331] For the Soviet portion of the option, this would involve roughly 1,750 warheads. Memorandum, Laurence E. Lynn, Jr. to Dr. Kissinger, "The SIOP," November 8, 1969, Top Secret, p. 2. Mandatory Review Release to the National Security Archive. Available at http://www.gwu.edu/~nsarchiv/NSAEBB/NSAEBB173/index.htm

[332] Memorandum, Laurence E. Lynn, Jr. to Dr. Kissinger, "The SIOP" November 8, 1969, Top Secret, p. 2. Mandatory Review Release to the National Security Archive. Available at http://www.gwu.edu/~nsarchiv/NSAEBB/NSAEBB173/index.htm

[333] U.S. National Security Council, Memorandum of Conversation, "Subject: Minutes of NSC Meeting of Defense Strategy," August 13, 1971. At U.S. Department of State, Foreign Relations, 1969-1976, Volume I, Foundations of Foreign Policy, document 96.

[334] National Security Council, Defense Program Review Committee, "U.S. Strategic Objectives and Force Posture Executive Summary," January 3, 197[2], Top Secret, p. 29. Partially declassified and released under FOIA to National Security Archive.

[335] Ibid., p. 101.

[336] Ibid., pp. 100, 101.

[337] Ibid., pp. 102, 103.

[338] Ibid., p. 103.

[339] Robert S. Norris, et al., "'Appendix B:' Deployments by Country, 1951-1977," *Bulletin of the Atomic Scientists*, November-December 1999, p. 67. From January 1958 to June 1962 Matador missiles were deployed on Taiwan.

[340] National Security Council, Defense Program Review Committee, *U.S. Strategic Objectives and Force Posture Executive Summary*, January 3, 197[2], Top Secret, pp. 34, 101. Partially declassified and released under FOIA to National Security Archive.

[341] U.S. Pacific Command, *CINCPAC Command History 1974*, Volume I, n.d. [1975], p. 265. Partially declassified and released under FOIA to Peter Hayes.

[342] Ibid., pp. 150, 263, 264-265; Office of the Assistant to the Secretary of Defense (Atomic Energy), *History of the Custody and Deployment of Nuclear Weapons: July 1945 Through September 1977*, February 1978, p. B-3. Partially declassified and released under FOIA to Robert S. Norris.

[343] The denuclearization of the Philippines in June 1977 followed an earlier withdrawal of 140 nuclear weapons in 1976 when, in accordance with the FY 1977 Nuclear Weapons Deployment Plan, 140 nuclear weapons were loaded onto USS Flint (AE-32) at Cubi Point and sailed on December 1st. U.S. Pacific Command, *CINCPAC Command History 1976*, Volume I, 1977, p. 197. Partially declassified and released under FOIA to Peter Hayes; Office of the Assistant to the Secretary of Defense (Atomic Energy), *History of the Custody and Deployment of Nuclear Weapons: July 1945 Through September 1977*, February 1978, p. B-4. Partially declassified and released under FOIA to Robert S. Norris.

[344] Department of the Navy, Strategic Systems Programs Office, *Facts/Chronology: Polaris-Poseidon-Trident*, 1996, p. 31.

Construction of the POMFPAC facility at Bangor, WA, commenced on March 5, 1963. Ibid, p. 33.

[345] The USS Ethan Allen (SSBN-608) was not homeported in the Pacific but at Charleston in South Carolina, and the Navy had originally intended to conduct the Frigate Bird test in the Atlantic Ocean with target area near Ascension Island mid-way between South American and Africa. The Joint Chiefs of Staff granted approval in March and USS Ethan Allen departed Charleston on April 19th with four of the 16 standard Polaris A2 missiles slightly modified with tracking beacons and command-destruct systems. Transit with the nuclear weapons was made through the Panama Canal. Originally planned for May 5th, technical and weather problems delayed Frigate Bird one day and the first two Polaris missiles failed to launch. After completion of the test, the USS Ethan Allen was rushed back to North Carolina, and on June 26th the submarine departed Charleston for its first deterrent patrol in the Atlantic. Edward C. Whitman, "The Other Frigate Bird," *Undersea Warfare*, U.S. Navy, Office of the Chief of Naval Operations, Fall 2004, n.p.; Department of the Navy, Strategic Systems Programs Office, *Facts/Chronology: Polaris-Poseidon-Trident*, 1996, p. 31.

[346] U.S. Pacific Command, *CINCPAC Command History 1962*, Volume I, April 30, 1963, p. 38. Partially declassified and released under FOIA.

[347] U.S. Pacific Command, *CINCPAC Command History 1963*, April 27, 1964, p. 34. Partially declassified and released under FOIA to Peter Hayes.

[348] Department of the Navy, Strategic Systems Programs Office, *Facts/Chronology: Polaris-Poseidon-Trident*, 1996, p. 32.

[349] U.S. Strategic Air Command, *History of the Joint Strategic Target Planning Staff: Revisions 1-8 to SIOP-64*, January 1967, p. 28. NOFORN/TOP SECRET. Partially declassified and released under FOIA. Available at National Security Archive, Washington, D.C.

[350] Department of the Navy, Strategic Systems Programs Office, *Facts/Chronology: Polaris-Poseidon-Trident*, 1996, p. 33.

Subsequent deterrent patrols in 1965 in the Pacific included: USS Tecumseh (SSBN-628) departing Apra Harbor, Guam, on January 24; USS Ulysses S. Grant (SSBN-631) departing Pearl Harbor, HI, on February 6; and USS Stonewall Jackson (SSBN-634) departing Bangor, WA, on April 9. Ibid, pp. 34-35. R. B. Byers, ed., *The Denuclearisation of the Oceans* (Kent: Croom Helm, 1986), p. 244.

Less than six months after the SSBNs began to depart from Guam on deterrent patrols in the Pacific, China formally authorized development of the DF-4 (CSS-3), the first Chinese ballistic missile capable of targeting Guam. Bates Gill, et al., "The Chinese Second Artillery Corps: Transition to Credible Deterrence," in James C. Mulvenon and Andrew N.D. Yang (eds.), *The People's Liberation Army as Organization*, Santa Monica, CA: RAND, 2002, p. 510.

[351] Department of the Navy, *United States Navy Submarine Centennial Chronology*, n.d. [last entry September 2, 1999]. Available online at http://www.chinfo.navy.mil/navpalib/ships/submarines/centennial/chrono.html

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The last operational Polaris A3 missiles left the Atlantic on August 10, 1973, as the USS Robert E. Lee (SSBN-601) sailed through the Panama Canal to commence deterrent patrols in Pacific. Tim VeArd, U.S. Navy (Ret.), USS Robert E. Lee Blue crew (NavET, 1965-70), *History of the USS Robert E. Lee*, n.d. [downloaded July 19, 2000]. Available online at http://www.ssbn601.com/history.htm

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[354] U.S. Pacific Command, *CINCPAC Command History 1965*, Volume I, 1966, pp. 32-33. Top Secret. Partially declassified and released under FOIA to Peter Hayes.

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[356] Bruce G. Blair, *Strategic Command And Control: Redefining the Nuclear Threat* (The Brookings Institution, Washington, D.C., 1985), p. 172.

[357] U.S. Strategic Command, *History of the Strategic Air Command July-December 1969*, Volume I, 1970, p. 208. Partially declassified and released under FOIA.

[358] U.S. Pacific Command, *CINCPAC Command History 1972*, Volume I, n.d. [1973], pp. 43, 44. Partially declassified and released under FOIA.

[359] U.S. Pacific Command, *CINCPAC Command History 1973*, Volume I, n.d. [1974], p. 71. Partially declassified and released under FOIA.

[360] Bruce G. Blair, Strategic *Command And Control: Redefining the Nuclear Threat* (The Brookings Institution, Washington, D.C., 1985), p. 198.

[361] Deployments to Taiwan were discontinued in 1974 following withdrawal of U.S. forces from the island.

[362] U.S. Pacific Command, CINCPAC *Command History 1974*, Volume I, n.d. [1975], pp. 97-98. Partially declassified and released under FOIA.

[363] U.S. Pacific Command, *CINCPAC Command History 1973*, Volume I, n.d. [1974], p. 71; U.S. Pacific Command, *CINCPAC Command History 1974*, Volume I, n.d. [1975], p. 98. Both documents partially declassified and released under FOIA to Peter Hayes.

The VLF/LF capability of the ABNCP aircraft, which made direct communication with the submarines possible without the TACAMO aircraft, had been installed on ABNCP aircraft in 1969 despite the objection of CINCPAC. JCS ordered the equip-

ment installed as part of the Minimum Essential Emergency Communications Net, although CINCPAC worried that the EC-135P ABNCP aircraft would be too heavy. With the extra weight, ABNCP in Hawaii would be able to reach Guam all times a year but only Yokota AB in good weather. Clark AB in the Philippines and Andrews AFB in Washington would be out of reach without refueling. U.S. Pacific Command, *CINCPAC Command History 1969*, Volume I, n.d. [1970], pp. 44-45. Partially declassified and released under FOIA.

[364] U.S. Pacific Command, *CINCPAC Command History 1975*, Volume I, n.d. [1976], p. 63. Partially declassified and released under FOIA to Peter Hayes; Bruce G. Blair, *Strategic Command and Control: Redefining the Nuclear Threat* (The Brookings Institution, Washington, D.C., 1985), p. 170.

[365] Department of the Navy, PMA-271: *Airborne Strategic Command, Control, and Communications (C3 Program*, n.d. [downloaded 2/9/00], n.p. ["ECX (TACAMO aircraft, Future) STUDIES"]. Available online at http://pma271.navair.navy.mil/history/history_txt.html

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[367] U.S. Congress, Senate, Committee on Appropriations, Hearings on Department of Defense Appropriations for Fiscal Year 1982, Part 7, 99st Cong., 1983, p. 4724; as cited in Bruce G. Blair, *Strategic Command And Control: Redefining the Nuclear Threat* (The Brookings Institution, Washington, D.C., 1985), p. 270.

[368] William M. Arkin and Richard W, Fieldhouse, *Nuclear Battlefields: Global Links in the Arms race* (Ballinger/Institute for Policy Studies, Washington, D.C., 1985), pp. 195, 213; Bruce G. Blair, *Strategic Command And Control: Redefining the Nuclear Threat* (The Brookings Institution, Washington, D.C., 1985), p. 270.

[369] The quote is from: U.S. Department of State, Memorandum, *Nuclear Weapons Policy – NSSM 169 Study and Related NSDM*, n.d. [1973], p. 1, Tab A to Briefing memorandum, Winston Lord to Secretary of State Henry Kissinger, NSSM 169 – *Nuclear Weapons Policy*, December 3, 1973. Partially declassified and released under FOIA to National Security Archive.

[370] David M. Kunsman and Douglas B. Lawson, *A Primer on U.S. Strategic Nuclear Policy*, Sandia National Laboratories, SAND2001-0053, January 2001, p. 17.

[371] William Burr, *The Nixon Administration, the SIOP, and the Search for Limited Nuclear Options, 1969-1974*, National Security Archive Electronic Briefing Book No. 173, November 23, 2005, URL http://www.gwu.edu/~nsarchiv/NSAEBB/NSAEBB173/index.htm. Jack Kangas, et al, *U.S. Nuclear Weapons Policy Toward China 1985-1995*, DNA-5895F, February 10, 1981, p. 88. Partially declassified and released under FOIA to Peter Hayes.

[372] Memorandum, Henry Kissinger to President Richard Nixon, *Nuclear Policy*, January 7, 1974, p. 3. Declassified and released to National Security Archive.

[373] W. E. Colby, Director of Central Intelligence, *Soviet and PRC Reactions to U.S. Nuclear Weapon Employment Policy*, August 1, 1974, attachment, p. v. Top Secret. Partially declassified and released under FOIA to National Security Archive.

[374] U.S. Department of Defense, Office of Secretary of Defense, *Policy Guidance for the Employment of Nuclear Weapons,* April 3, 1974; U.S. National Security Council, *Analytical Summery; DOD Targeting Study Results and Proposals*, n.d. [January 1973], pp. 4-6; Attachment C to Memorandum, Phil Odeen to Henry Kissinger, *Secretary Laird's Memo to the President Dated December 26, 1972 Proposing Changes in U.S. Strategic Policy*, January 5, 1973. Top Secret/Sensitive. Obtained by National Security Archive. Both documents are available at http://www.gwu.edu/~nsarchiv/NSAEBB/NSAEBB173/index.htm.

[375] W. E. Colby, Director of Central Intelligence, *Soviet and PRC Reactions to U.S. Nuclear Weapon Employment Policy*, August 1, 1974, attachment, p. v. Top Secret. Partially declassified and released under FOIA to National Security Archive.

[376] U.S. Department of Defense, Office of Secretary of Defense, *Policy Guidance for the Employment of Nuclear Weapons*, April 3, 1974, pp. A-5, A-6; U.S. National Security Council, *Analytical Summery; DOD Targeting Study Results and Proposals*," n.d. [January 1973], pp. 4-6; Attachment C to Memorandum, Phil Odeen to Henry Kissinger, S*ecretary Laird's Memo to the President Dated December 26, 1972 Proposing Changes in U.S. Strategic Policy*, January 5, 1973. Top Secret/Sensitive. Obtained by National Security Archive. Both documents are available at http://www.gwu.edu/~nsarchiv/NSAEBB/NSAEBB173/index.htm.

[377] Richard A. Mobley, "Revisiting the Korean Tree-Trimming Incident," J*oint Forces Quarterly*, Issue 35, Summer 2003, p. 111. The author states that the August 1976 DEFCON 3 was "the first time it was changed in response to activity in North Korea." Ibid., p. 110.

[378] John K. Singlaub, *Hazardous Duty: An American Soldier in the Twentieth Century* (New York: Summit Books, 1991), as cited in Richard A. Mobley, "Revisiting the Korean Tree-Trimming Incident," *Joint Forces Quarterly*, Issue 35, Summer 2003, pp. 111, 113, 114.

[379] Richard A. Mobley, "Revisiting the Korean Tree-Trimming Incident," *Joint Forces Quarterly*, Issue 35, Summer 2003, p. 109.

[380] U.S. Pacific Command, *CINCPAC Command History 1976*, Volume I, October 18, 1977, pp. 160, 161. Partially declassified and released under FOIA.

[381] Ibid., p. 196.

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[384] This was the last visit before conversion to attack submarine in February 1981. Norman Friedman, *U.S. Submarines Since 1945* (Annapolis, Maryland: Naval Institute Press, 1994), p. 235.

[385] This visit reportedly was a mid-patrol break. Tim VeArd, U.S. Navy (Ret.), USS Robert E. Lee Blue crew (NavET, 1965-70), *History of the USS Robert E. Lee*, n.d. [downloaded July 19, 2000]. Available online at http://www.ssbn601.com/history.htm

[386] This was the last visit before conversion to attack submarine on November 20, 1981. Norman Friedman, *U.S. Submarines Since 1945* (Annapolis, Maryland: Naval Institute Press, 1994), p. 235.

[387] This reportedly was a "mid-patrol break" during a deterrent patrol from Guam. During its subsequent 55th and final patrol, which was also the US Navy's last A3T Polaris patrol, the submarine reportedly crossed the Equator and International Date Line at the same time. *History of the USS Robert E. Lee*, Unofficial SSBN 601 Web Site, updated as of January 22, 2003, URL <http://www.ssbn601.com/history.asp>.

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[389] Department of the Navy, Office of the Chief of Naval Operations, *Visits by U.S. Navy ships to foreign countries*, OPNAVINST 3128.3P, March 18, 1982, Enclosure 1, pp. 1, 7, 18.

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[390] William M. Arkin and Joshua Handler, *Neptune Papers No. 3: Naval Accidents 1945-1988*, Greenpeace/Institute for Policy Studies, June 1989, p. 59.

[391] Desmond Ball and Jeffrey Richelson, ed., *Strategic Nuclear Targeting* (Cornell University Press: 1986), pp. 77, 78; Leon Sloss, "Nuclear Policy, Then and Now," Washington Post, December 9, 1997, p. A24.

[392] Gregg Herken, *Counsels of War*, Alfred A. Knopf, New York, 1985, pp. 297-300; as cited in David M. Kunsman, et al., *A Primer on U.S. Strategic Nuclear Policy,* Sandia Report 2000-0053, January 2001, p. 59.

[393] Leon Sloss, "Nuclear Policy, Then and Now," *Washington Post*, December 9, 1997, p. A24; Desmond Ball and Jeffrey Richelson, ed., *Strategic Nuclear Targeting* (Cornell University Press: 1986), p. 76.

[394] Colonel K. P. Watts, USAF/J54, "Subject: Nuclear Targeting Policy Review (NTPR)," Point Paper, October 25, 1979, p. 2. Partially declassified and released under FOIA.

[395] Thomas B. Cochran, et al., *Nuclear Weapons Databook Volume I: U.S. Nuclear Forces and Capabilities* (Cambridge, Massachusetts: Ballinger, 1984), p. 186.

[396] Desmond Ball and Jeffrey Richelson, ed., *Strategic Nuclear Targeting* (Cornell University Press: 1986), p. 78.

[397] U.S. Pacific Command, *CINCPAC Command History 1980*, Volume II, September 17, 1981, p. 612. Secret. Partially declassified and released under FOIA.

[398] U.S. Pacific Command, *CINCPAC Command History 1981*, Volume I, September 30, 1982, pp. 11, 221. Secret. Partially declassified and released under FOIA; U.S. Department of the Navy, USS Proteus (AS-19), *Command History 1981*, n.d. (1980), Enclosure 1, p. 7.

[399] Robert S. Norris, et al., *Nuclear Weapons Databook Volume V: British, French, and Chinese Nuclear Weapons* (Boulder, CO: Westview, 1994), p. 363.

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[401] Jack Kangas, et al, *U.S. Nuclear Weapons Policy Toward China 1985-1995,* DNA-5895F, February 10, 1981, p. 11. Partially declassified and released under FOIA to Peter Hayes.

[402] China's increasing emphasis on economical development may make it easier in the future to project "traditional" deterrence strategy onto that country. Ibid., p. 37.

[403] Ibid., pp. 37-38.

[404] Ibid., pp. 38, 45.

[405] Ibid., pp. 87-88.

[406] Ibid., p. 17.

[407] Ibid., p. 26.

[408] Ibid., p. 80.

[409] Ibid., pp. 80, 81.

[410] U.S. Pacific Command, *CINCPAC Command History 1976*, October 18, 1977, Volume I, pp. 91, 92. Secret. Partially declassified and released under FOIA to Peter Hayes.

[411] U.S. Pacific Command, *CINCPAC Command History 1980*, Volume I, September 17, 1981, p. 71. Secret. Partially declassified and released under FOIA to Peter Hayes.

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[413] U.S. Pacific Command, *CINCPAC Command History 1984*, Volume I, September 27, 1985, p. 77. Partially declassified and released under FOIA to Peter Hayes.

[414] James A. Kelly, Deputy Secretary of Defense for East Asian and Pacific Affairs, Statement before the House Foreign Affairs Committee, May 6, 1984; as referenced in William M. Arkin and Richard W. Fieldhouse, *Nuclear Battlefields: Global Links in the Arms Race* (Cambridge: Ballinger, 1985), p. 117.

[415] Gregg Herken, *Counsels of War*, Alfred A. Knopf, New York, 1985, p. 319; as cited in David M. Kunsman, et al., *A Primer on U.S. Strategic Nuclear Policy*, Sandia Report 2000-0053, January 2001, p. 64.

[416] William M. Arkin and Robert S. Norris, *Nuclear Alert after the Cold War*, Natural Resources Defense Council, NWD 93-4, October 18, 1993, pp. 6, 11 (footnote 38); Bruce Blair, *Global Zero Alert for Nuclear Forces*, Brookings Occasional Papers, the Brookings Institution, Washington, D.C., 1995, p. 7.

[417] U.S. Pacific Command, *CINCPAC Command History 1984*, Volume I, September 27, 1985, p. 171. Partially declassified and released under FOIA.

CONPLAN (Concept Plan) is an Operation Plans (OPLAN) in Concept Format. An OPLAN is an operational plan for the conduct of military operations that could be translated into an operation order with minimum alteration. Complete plans include deployment/employment phases, as appropriate. A CONPLAN, conversely, is an operation plan in an abbreviated format that still requires expansion into a formal OPLAN or Operational Order (OPORD) prior to implementation. An OPORD is a directive, usually formal, issued by a commander to subordinate commanders for the purpose of effecting the coordinated execution of an operation. Generally, each OPLAN requires a complete, annual logistic appraisal for supportability as prescribed in the Joint Strategic Capabilities Plan. Ibid., p. 179.

[418] U.S. Pacific Command, *CINCPAC Command History 1983*, Volume II, September 27, 1984, p. 284. Partially declassified and released under FOIA.

[419] PACOM/J321, *Staff History Submission March 1983*, April 8, 1983; PACOM/J321, *Staff History Submission June 1983*, July 6, 1983. Both documents released under FOIA.

[420] U.S. Pacific Command, *CINCPAC Command History 1984*, Volume I, September 27, 1985, p. 171. Partially declassified and released under FOIA.

[421] Ibid., p. 170.

[422] The White House, *The President's Visit to the People's Republic of China*, National Security Decision Directive 140, April 21, 1984, p. 1. Obtained under FOIA by National Security Archive.

[423] Ibid., p. 4.

[424] U.S. Strategic Air Command, *History of the Strategic Air Command 1 January-31 December 1987*, Volume III, November 9, 1988, p. III-24. Partially declassified and released under the Freedom of Information Act.

The SRF forces were subdivided into the Secure Reserve Force (SRF) and residual forces on the one hand, and the Designated Reserve Forces (DRF) plus residual forces on the other hand. Residual forces included strategic and non-strategic nuclear forces, with the former consisting of recovered/reconstituted, uncommitted, and unexecuted forces. Non-strategic Residual Forces, in turn, consisted of uncommitted and not NATO designated nuclear forces. Chairman of the Joint Chiefs of Staff, J-5, *Nuclear Supplement to Joint Strategic Capabilities Plan for FY 1996 (JSCP FY 96)*, CJCSI 3110.04, 12 February 1996, pp. D-26, D-28. Partially declassified and released under the FOIA.

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[426] U.S. Strategic Air Command, *History of the Strategic Air Command 1 January-31 December 1987*, November 9, 1988, Volume I, p. I-5. Partially declassified and released under FOIA.

[427] U.S. Department of the Navy, Commander Submarine Group SEVEN, to Commander Submarine Force, U,S, Pacific Fleet, "Submission of Fiscal Year 1986 Battle Efficiency and Departmental Awards Nominations for USS Proteus (AS-19)," n.d. [1986], pp. 2, 3, 20.

[428] Admiral Richard W. Mies, Command in Chief, U.S. Strategic Command, "The SSBN in National Security," *Undersea Warfare*, Fall 1999, Vol. 2, No. 1, n.p. [pp. 6, 8].

[429] Memo, SAC (SOBFB), "Holding Relocatable Targets (RTs) at Risk," February 17, 1987. Secret. Partially declassified and released under FOIA.

[430] Memo, SAC(XOBF), "Relocatable Targets in the SIOP," October 24, 1986. Secret. Partially declassified and released under FOIA.

[431] U.S. Department of the Navy, *Command History for USS Alabama (SSBN-731) (Blue), March 1986-March 1987*, April 8. 1987, pp. 3, 4; U.S. Department of the Navy, Command History for USS Alabama (SSBN-731)(Gold), January 1987-February 1988, February 27, 1988, pp. 1, 2.

[432] U.S. Department of the Navy, Strategic Systems Programs Office, *Facts/Chronology: Polaris-Poseidon-Trident*, 1996, p. 9.

[433] U.S. Department of the Navy, *Command History for USS Alabama (SSBN-731) (Gold)*, February 1988-February 1989, February 15, 1989, p. 2.

[434] U.S. Strategic Air Command, *History of the Strategic Air Command 1 January-31 December 1987*, November 9, 1988, Volume I, p. I-5. Partially declassified and released under FOIA.

[435] Ibid.

[436] Ibid., Volume III, pp. III-31, III-32; Memo, SAC(XOBF), "Relocatable Targets in the SIOP," October 24, 1986. Both documents partially declassified and released under FOIA.

[437] U.S. Pacific Command, *CINCPAC Command History 1984*, Volume I, September 27, 1985, p. 70. Partially declassified and released under FOIA.

[438] "Need for U.S. Forces in South Korea May Pass by Mid-90s, General Says," Reuters-Kyodo, August 14, 1989; cited in Peter Hayes, *Pacific Powderkeg: American Nuclear Dilemmas in Korea* (Massachusetts: Lexington Books, 1991), pp. xliv-xlv.

This view was echoed in the Joint Chiefs of Staff's annual Joint Military Net Assessment from 1990 which stated: "As ROK forces grow stronger, a reduction of US forces may be warranted. However, continuous retention of US troops in Korea will be required as long as the US and Korean governments and people want them there." U.S. Joint Chiefs of Staff, *1990 Joint Military Net Assessment*, 20 January, 1990, p. IV-3.

[439] U.S. Joint Chiefs of Staff, *1991 Joint Military Net Assessment*, March 1991, pp. 44, 6-1 to 7-2; U.S. Joint Chiefs of Staff, *1992 Joint Military Net Assessment*, March 15, 1992, pp. 7-1 to 7-12.

[440] The initiative also withdrew non-strategic nuclear weapons (except bombs) from Europe and from surface ships and attack submarines.

[441] U.S. Pacific Command, *USCINCPAC Command History 1991*, October 30, 1992, p. 90. Secret. Partially declassified and released under FOIA.

[442] Ibid.

[443] U.S. Pacific Command, *USCINCPAC Command History 1991*, October 30, 1992, pp. 91-92. Secret. Partially declassified and released under FOIA.

[444] Don Oberdorfer, "Airborne U.S. A-Arms To Stay in South Korea," *Washington Post*, October 12, 1991, p. A20; Don Orberdorfer, "U.S. Decides to Withdraw A-Weapons From S. Korea," *Washington Post*, October 20, 1991, p. A1.

[445] Deborah Zabarenko, "Pentagon Official: U.S. Can Still Defense Against North Korea," Reuter (Washington), September 30, 1991.

[446] "Seoul Certain Of Remaining Under U.S. Nuclear Umbrella," *Reuter* (Seoul), October 19, 1991; David E. Rosenbaum, "U.S. to Pull A-Bombs From South Korea," *New York Times*, October 29, 1991, p. 3.

[447] U.S. Pacific Command, *USCINCPAC Command History 1991*, October 30, 1992, pp. 91-92. Secret. Partially declassified and released under FOIA.

[448] Paul Blustein, "U.S. Nuclear Arms All Withdrawn, South Korea Says," *Washington Post*, December 12, 1991, p. A43; Robin Bulman, "No A-Arms In S. Korea, Roh Says," *Washington Post*, December 19, 1991, p. A38.

[449] Dual-capable fighter wings in the Continental United States also maintained a nuclear capability and were tasked to forward deploy to Northeast Asia if necessary.

[450] U.S. Pacific Fleet, n.t. [*U.S. Pacific Command History for 1991*], n.d. [1992], p. 8. Partially declassified and released under FOIA.

[451] Department of the Navy, Commander Submarine Force U.S. Pacific Fleet, *Command History for 1991*, p. 7. Partially declassified and released under FOIA.

[452] For an overview of the shift in U.S.-Chinese relations, see: Jonathan D. Pollack, "The Cox Report's 'Dirty Little Secret'," Arms Control Today, April/May 1999, n.p. (electronic version).

[453] Thomas C. Reed and Michael O. Wheeler, *The Role of Nuclear Weapons in the New World Order*, Strategic Advisory Group, U.S. Strategic Air Command, January 13, 1992, p. 13 and Appendix B.

[454] Joint Strategic Target Planning Staff, *Minutes of the Forty-Seventh JSTPS Strategic Advisory Group Meeting 2-3 April 1992, Offutt AFB, Nebraska*, May 1, 1992, p. v. Partially declassified and released under FOIA.

[455] U.S. Strategic Command, *Sun City Extended: A USSTRATCOM Study of Future Force Structures*, February 1, 1994, p. 39. Secret. Partially declassified and released under FOIA. Available online at http://www.nukestrat.com/us/stratcom/suncityex.htm

[456] U.S. Senate, Armed Services Committee, *Threat Assessment, Military Strategy, and Defense Planning*, 102d Congress, 2d Session, January 22, 1992, p. 34.

[457] U.S. Department of the Navy, *Chinese Exercise Strait 961: 8-25 March 1996*, n.d. [1996], pp. 1, 3, 4, 7. Obtained by National Security Archive.

[458] Brfg (S/US & Japan Only/Formerly OADR, 14 Jul 96), PACAF/AIS, "Chinese Exercise Summary (U)," 14 Jul 96; as cited in U.S. Pacific Air Forces, *History of Pacific Air Forces, 1 January 1996 – 31 December 1996*, Volume I (Narrative), n.d. [1997], p. 14. Secret. Partially declassified and released under FOIA.

The Chinese news agency Xinhua reported in August 2006 that China had conducted its "first joint exercise involving troops from a PLA area command, the Air Force, the Second Artillery, and the Chinese People's Armed Police." The exercise, known as North Sword – 0607(S), was held at an unidentified northern training base, involved a thousand tanks, armored vehicles and troops carriers, and covered 1,000 square kilometers. "PLA holds high-technology war exercise," *Xinhua*, August 24, 2006.

[459] U.S. Department of the Navy, Joint Intelligence Center Pacific, *South China Sea: Spratly Islands Summary*, OS-021-96, July 19, 1996 (reviewed on February 1, 1997), n.p. [page 4]. Secret. Partially declassified and released under FOIA.

[460] U.S. Department of Defense, *Annual Report on the Military Power of the People's Republic of China*, June 22, 2000, n.p.

[461] R. Jeffrey Smith, "Clinton Changes Nuclear Strategy," *Washington Post*, December 7, 1997, page A1.

[462] Ibid.

[463] U.S. Department of Defense, *Transforming Defense: National Security in the 21st Century*, Report of the National Defense Panel, Washington, D.C., December 1997, p. 50. The National Defense Panel was established by the Congress as part of the Military Force Structure Review Act of 1996 as an independent body to review the findings of the Defense Department's Quadrennial Defense Review (QDR). The members were appointed by the Secretary of Defense.

[464] See: Bruce Blair, *Removing The Hair Trigger On Nuclear Forces*, The Brookings Institution, remarks at the Carnegie International Non-Proliferation Conference, January 12, 1999, p. 3; Elaine Grossman, "SIOP List Reportedly Grew 20 Percent: Nuclear Weapons Expert Says U.S. Warfighting Plan Now Targets China," *Inside the Pentagon*, Volume 15, Number 2, January 14, 1999. Bruce Blair, *Cold War Era Assumptions Drive U.S. Nuclear Force Levels: Why the Target List Should Shrink*, Coalition to Reduce Nuclear Dangers/Center for Defense Information, Issue Brief, Volume 4, Number 7, May 18, 2000.

[465] The White House, Office of the Press Secretary, Press Briefing by Mike McCurry and National Security Advisor Sandy Berger, Shangri-la Hotel, Xian, People's Republic of China, June 26, 1998.

[466] Bill Gertz, "China targets nukes at U.S.," *Washington Times*, May 1, 1998.

[467] Bill Gertz, "China adds 6 ICBMs to Arsenal," *Washington Times*, July 21, 1998.

[468] Kenneth H. Bacon, Assistant Secretary of Defense (Public Affairs), DOD News Briefing, July 7, 1998, 1:45 p.m. (EDT).

[469] China has, for its part, continued to use the word "detargeting" to describe the agreement. "China's Endeavors on Arms Control, Disarmament and Non-Proliferation," Information Office of the State Council of the People's Republic of China, Beijing, September 2005, p. 10.

[470] Bruce G. Blair, Senior Fellow, Foreign Policy Studies, Brookings Institution, Statement before Subcommittee on Military Research and Development, House National Security Committee, March 17, 1997.

[471] Bruce G. Blair, "Where Would All the Missiles Go?," *Washington Post*, June 3, 1998.

[472] U.S. Department of Defense, Office of the Secretary of *Defense, Nuclear Posture Review Report*, January 8, 2002 (Submitted to Congress on December 31, 2001), pp. 16-17. Excerpts available via http://www.GlobalSecurity.org.

[473] Eugene E. Habiger, USAF (Ret.), "Strategic Forces for Deterrence," *Joint Forces Quarterly*, Winter 1996-1997, p. 68.

[474] See: U.S. Department of the Navy, Office of the Chief of Naval Operations,

"Submarine Forward Presence as of November 1998," *Undersea Warfare*, Vol. 1, No. 2, Winter 1998/1999, n.p.; Department of the Navy, Office of the Chief of Naval Operations, "Submarine Forward Presence as of May 1999," *Undersea Warfare*, Vol. 1, No. 4, Summer 1999, n.p.; Department of the Navy, Office of the Chief of Naval Operations, "Submarine Forward Presence as of August 1999," *Undersea Warfare*, Vol. 2, No. 1, Fall 1999, n.p.; Department of the Navy, Office of the Chief of Naval Operations, "Submarine Forward Presence as of November 1999," *Undersea Warfare*, Vol. 2, No. 2, Winter 1999, n.p.; Department of the Navy, Office of the Chief of Naval Operations, "Submarine Forward Presence as of February 2000," *Undersea Warfare*, Vol. 2, No. 3, Spring 2000, n.p.; Department of the Navy, Office of the Chief of Naval Operations, "Submarine Forward Presence as of February 2000 [sic; July 2000]," *Undersea Warfare*, Vol. 2, No. 4, Summer 2000, n.p.; Department of the Navy, Office of the Chief of Naval Operations, "Submarine Forward Presence as of September 2000," *Undersea Warfare*, Vol. 3, No. 1, Fall 2000, n.p.; Department of the Navy, Office of the Chief of Naval Operations, "Submarine Forward Presence as of January 2001," *Undersea Warfare*, Vol. 3, No. 2, Winter 2001, n.p.; Department of the Navy, Office of the Chief of Naval Operations, "Submarine Forward Presence as of April 2001," *Undersea Warfare*, Vol. 3, No. 3, Spring 2001, n.p.; Department of the Navy, Office of the Chief of Naval Operations, "Submarine Forward Presence as of July 2001," *Undersea Warfare*, Vol. 3, No. 4, Summer 2001, n.p.

These publications are available on the Chief of Naval Operations' website at <http://www.chinfo.navy.mil/navpalib/cno/n87/mag.html>. Submarine Forward Presence maps were discontinued after September 11, 2001, due to new submarine security guidance.

[475] U.S. Department of the Navy, Office of the Chief of Naval Operations, *Strategic Deterrence*, n.d. [downloaded May 3, 2000]. Available online at http://www.chinfo.navy.mil/navpali…_3/pullout/submarine_strategic.htm

[476] U.S. Department of the Navy, Naval Submarine Base, Bangor, *TRIDENT* Program, n.d. [downloaded May 10, 2000]. The document is available from the base website at http://www.bangor.navy.mil/welcome/trident.html.

Despite its long range, however, Trident weapon system planning in the 1990s have continued to involve "time to move into range," indicating that the submarines still need to transit for some time to be in range of some targets. See for example: U.S. Strategic Command/ J5, *Sun City*, 1993, p. 21. Partially declassified and released under FOIA.

[477] See: Robert S. Norris and William M. Arkin, "NRDC Nuclear Notebook: U.S. Nuclear Forces 2000," *Bulletin of the Atomic Scientists*, May/June 2000, Vol. 56, No. 2, p. 69. Available online at http://www.bullatomsci.org/issues/nukenotes/mj00nukenote.html; Dr. Bruce Blair, *Cold War Era Assumptions Drive U.S. Nuclear Force Levels: Why the Target List Should Shrink*, Center for Defense Information/Coalition to Reduce Nuclear Dangers, Issue Brief, Volume 4, Number 7, May 18, 2000, n.p. [p. 2].

[478] U.S. Pacific Command, n.t. [*U.S. Pacific Fleet History 1991*], n.d. [1992], p. 15. Partially declassified and released under FOIA.

[479] Captain William Norris, U.S. Navy (Ret.), "START III: Do We Need Bangor," *The Submarine Review*, October 1997, p. 12.

[480] See for example: William M. Arkin and Richard W, Fieldhouse, *Nuclear Battlefields: Global Links in the Arms race* (Ballinger/Institute for Policy Studies, Washington, D.C., 1985), p. 45.

The General Accounting Office in 1979 stated that of 41 strategic submarines, 23 (56 percent) were at sea at any given time, and 12 of these (52 percent, or 29 percent of total force) were on station at full alert capable of launching their missiles within minutes. The remaining 11 submarines at sea were not on full alert but could be brought to that condition probably within hours. U.S. General Accounting Office, *An Unclassified Version of a Classified Report Entitled 'The Navy's Strategic Communications System – Need for Management Attention and Decisionmaking,'* PSAD-79-48A (May 2, 1979), p. 2. Released under FOIA. Note: the unclassified report does not reveal the number of SSBNs deployed in each ocean. The numbers are, however, disclosed by Mr. Bruce G. Blair in *Strategic Command And Control: Redefining the Nuclear Threat* (The Brookings Institution, Washington, D.C., 1985), p. 173, footnote 100.

[481] Mary Popejoy , U.S. Navy, Public Affairs, "USS Alaska Departs Bangor for Final Time," *Navy News*, July 19, 2006.

[482] Charles B. Young, RADM U.S. Navy, Director, *Strategic Systems Program, Strategic Importance to the United States*, speech at Strategic Weapons Facility Pacific, n.d. [August 2002], p. 1. Obtained under FOIA.

[483] U.S. Department of Energy, Office of Defense Programs, *Stockpile Stewardship and Management Plan: First Annual Update, October 1997*, p. 1-14. Partially declassified and released under FOIA.

[484] Personal conversation, June 16, 2005.

[485] William M. Arkin, "America's New China War Plan," *Early Warning (Washington Post)*, May 24, 2006.

[486] Keir A. Lieber and Daryl G. Press, "The End of MAD? The Nuclear Dimension of U.S. Primacy," *International Security*, vol. 30, No. 4 (Spring 2006), pp. 7-44.

[487] Hazard Prediction Assessment Capability (HPAC), software developed by SAIC under contract to the DOD. According to the HPAC user's manual: "Hazard Prediction and Assessment Capability (HPAC) is a counter proliferation, counterforce tool that predicts the effects of hazardous material releases into the atmosphere and its collateral effects on civilian and military populations." See: http://www.dtra.mil/toolbox/directorates/td/programs/acec/hpac.cfm.

[488] The LandScan 2000 Global Population Database – the second release – was developed by Oak Ridge National Laboratory for the United States Department of Defense. This dataset consists of a worldwide population figures compiled on a 30" X 30" latitude/longitude grid, where census numbers are assigned to grid cells based on a number of criteria, including persistent nighttime lights. See http://www.ornl.gov/sci/landscan/.

[489] STRATCOM – the United States Strategic Command – is one of the nine unified U.S. commands under the Department of Defense and has responsibility for U.S. nuclear strike planning and execution. In addition, on January 10, 2003, Change 2 to the Unified Command Plan (UCP) assigning four additional missions to STRATCOM: missile defense, global strike (which includes nuclear strikes), information operations, and global C4ISR. Finally, on March 1, 2005, Unified Command Plan 2004 assigned STRATCOM a sixth mission area: coordinating the Pentagon's efforts to combating Weapons of Mass Destruction. See: http://www.stratcom.mil/.

[490] Will Beijing's Nuclear Arsenal Stay Small or Will It Mushroom?, David E. Sanger and Erik Eckholm, *New York Times*, March 15, 1999, p. A1.

[491] Lisbeth Gronlund and David Wright, "Depressed Trajectory SLBMs: A Technical Evaluation and Arms Control Possibilities," *Science and Global Security*, Vol. 3, Nos. 1-2 (1992), pp. 101-159.

[492] Matthew G. McKinzie, Thomas B. Cochran, Robert S. Norris and William M. Arkin, T*he U.S. Nuclear War Plan: A Time for Change*, Natural Resources Defense Council, June 2001 (available at http://www.nrdc.org/nuclear/warplan/index.asp)

[493] Samuel Glasstone and Philip J. Dolan, *The Effects of Nuclear Weapons* (US Department of Defense and Department of Energy, 1977), pp. 387-460.

[494] In HPAC, the formula for calculating the minimum HOB of a nuclear explosion causing no local fallout is: HOB (feet) > 180 x Yield(kilotons)0.4.

[495] The initial height of a fallout "mushroom" cloud for nuclear weapon yields greater than 1 kiloton is given by the following formula: Height of Cloud (thousands of feet) = 44 + 6.1 x ln(Yield(kt)/1000) – 0.205(ln(Yield(kt)/1000) + 2.42) x ABS(ln(Yield(kt)/1000) + 2.42), where ABS is the absolute value. This formula was found in the "Help" file for the computer code WE ("Weapons Effects"), created for the U.S. Defense Nuclear Agency by Horizons Technology in December 1984. For example, at the 15 Mt U.S. nuclear test "Bravo" conducted on Bikini Atoll in 1954 the mushroom cloud reached a height of 50,000 feet. The above formula predicts a cloud height of 55,000 feet.

[496] From HPAC 4.04.011 documentation: *Casualty Estimation and Performance Decrement*, Table 8-6.

[497] Lynn Eden, *Whole Worlds on Fire: Organizations, Knowledge, and Nuclear Weapons Devastation*, Ithaca, NY: Cornell University Press, 2003).

[498] U.S. Department of Defense, Joint Electronic Library, *Dictionary of Military Terms*, http://www.dtic.mil/doctrine/jel/doddict/data/o/03901.html.

[499] The actual number of warheads reaching their targets would likely be less due to missile failures, duds, and a possible U.S. anti-ballistic missile system.

[500] Actually mobile systems such as the DF-31A would likely have a smaller probability off pre-emptive destruction than the DF-5A.

[501] CJCS, "JP 3-12, "Joint Staff Input to JP 3-12, *Doctrine for Joint Nuclear Operations* (Second Draft)," as of 042803, pp. 34-35.

[502] Confidence in the capability of the U.S. offensive nuclear capability appears to be high. According to the Rear Admiral Eric A. McVadon, former Deputy Director for Strategy, Plans and Policy (Navy Staff) and Defense and Naval Attache at the American Embassy in Beijing, "even with the augmented nuclear arsenal [of DF-31 and JL-2 missiles], China's minimal deterrent is useful only when unused." Rear Admiral (USN, Ret.) Eric A. McVadon, Director of Asia-Pacific Studies, Institute for Foreign Policy Analysis, "Recent Trends in China's Military Modernization," prepared statement before the U.S.-China Economic and Security Review Commission, September 15, 2005, p. 6.

[503] U.S. Department of Defense, S*trategic Deterrence Requirements 2020* Study, Joint Requirements Oversight Council Memorandum (JROCM) 132-03, 17 June 2003, enclosure, pp. 2-3. Released under FOIA.

[504] For a review of future directions of the U.S.-Chinese nuclear relationship, see: Brad Roberts, *China-U.S. Nuclear Relations: What Relationship Best Serves U.S. Interests?,* Institute for Defense Analysis/Defense Threat Reduction Agency, IDA Paper P-3640, September 2001, p. ES-2. Available online at www.au.af.mil/au/awc/awcgate/dtra/china_us_nuc.pdf.

[505] China argued in the 1980s that it didn't have to get involved in nuclear arms limitations until the United States and the Soviet Union reduced their nuclear arsenals by 50 percent. When the United States and Russia in the 1990s cut back 60 percent, the Chinese switched to arguing that the two superpowers would have to come down to China's level (approximately 200 warheads) before arms control discussions could begin. This observation is presented in Brad Roberts, et al., "China: The Forgotten Nuclear Power," *Foreign Affairs*, July/August 2000, p. 62.